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CONTENTS

DIESEL RAILWAY TRACTION SUPPLEMENT

The January issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing development in Diesel Railway Traction, is now ready, price* 1s.

DIESEL INDEX

An index to the Diesel Railway Traction Supplement covering the issues from January to December, 1945, *has been prepared, and is now available free of charge on application to the Publisher*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are: Mondays to Fridays, 9.30 *a.m. till* 5.30 *p.m.*
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Recent Railway Accidents

AS is only to be expected, the frequency with which accidents have occurred on the British railways in recent weeks has attracted attention, and last week-end there was much comment in the daily and Sunday newspapers. Various endeavours have been made to find a reason for the unfortunate crop of accidents. Time will show whether others will follow. The public does not realise that for practically the whole of the war period and since, the railways have been starved of maintenance, and that much of the mechanical equipment is now worn and at a lower level of efficiency than normally is the case on the British railways. Not only are many of the operatives physically tired and mentally less alert, as a result of more than six years of strenuous war work; mechanical equipment has had to bear the unparalleled stress of wartime operation and without the maintenance and renewal which was accorded it under the far easier conditions of peacetime working. The fact that the railways' deferred maintenance account is now rather more than £100,000,000, is an indication of the manner in which it has been necessary to postpone work which would have been put in hand but for the shortages of labour and material arising from wartime conditions. Inevitably this must have its effect in some slight lowering of the safety factor on British railways, but in all the circumstances of the times it cannot be argued that that safety factor is other than very high. As labour and materials become available, and the railways are able to put in hand maintenance and renewal work, the position will be speedily remedied.

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Mr. J. H. Brebner Joins London Transport

The announcement by the London Passenger Transport Board that Mr. J. H. Brebner has been appointed Chief Public Relations & Publicity Officer from January 7, will regularise the organisation of the Board's Public Relations Department. Since Mr. F. Scothorne, who was Public Relations Officer from 1939 to 1944, retired a little over a year ago, no appointment as head of the department had been made. The choice of Mr. Brebner is particularly happy, for he enjoys an outstanding reputation in public relations matters, built up over many years. It is founded on the marked success which attended his work at the Post Office. He became associated with the G.P.O. in 1929, at a time when the public good will that organisation enjoyed was at a very low ebb, and he did a very great deal to bring about better relations with the public, much better, in our view, than the service deserved. During the war years, Mr. Brebner was Director of the News Division of the Ministry of Information. In 1937 he had been appointed a member of the official committee responsible for the creation of the Ministry. In addition, he has held a number of other responsible positions in connection with public and press relations, both at home and abroad. Mr. Brebner's acceptance of his new appointment with London Transport has entailed his resignation from the Civil Service, in which all his career hitherto has been spent.

* * * *

Higher Prices for Steel

The upward revision of iron and steel prices, which has been made by the Ministry of Supply, under the Control of Iron and Steel (No. 46) Order, 1945, and the Control of Bolts, Nuts, &c. (No. 9) Order, 1945, which came into effect from the beginning of this year, was not unexpected. The general advance in prices is about 5 per cent. on the main steel products. In fact, many of the schedules have been completely re-edited, and on some of the more highly-finished products the advances range up to 12½ per cent. In others previous prices are maintained, and for motor-body sheets from strip mills, prices have been reduced by about 10 per cent. Pig-iron making has been one of the less remunerative stages of the industry, and the basic price for pig-iron is raised by £1 a ton. British steel prices have been unchanged, in the main, since the beginning of 1941, and compared with 1938, they rose only by about 36 per cent. during the war, although the advance in the general level of wholesale prices was about 70 per cent. On the other hand, the cost of the chief elements of making steel—coke and iron ore—have been more than doubled, and wages also have risen. Changes are also being made in the arrangements whereby the bulk of the rise in costs has been met from a Ministry of Supply central fund built up by a system of levies on the industry, but this fund was running a deficit by 1943. With the new price schedule, these arrangements are discontinued, except for limited assistance in respect of freights on imported ore.

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Overseas Trade Department

The position of the Department of Overseas Trade, under which the Secretary of that department was responsible jointly to the Secretary of State for Foreign Affairs and the President

of the Board of Trade, frequently has been the subject of critical comment. Especially at the present time, when the need to stimulate export trade is vital to the national well-being, this division of responsibility was inimical to progress. The Government, therefore, has decided to review the responsibilities and mutual relations of the departments principally concerned with the Department of Overseas Trade. The Secretary of the Department of Overseas Trade is now to be known as the Secretary for Overseas Trade, and is to be directly responsible to the President of the Board of Trade. The Department of Overseas Trade is being integrated with the Board of Trade, and all overseas work is to be under the direction of the Secretary for Overseas Trade. The latter is subordinate to the President of the Board of Trade, but remains responsible for trade policy, both internal and external. Arrangements also are being made for close co-ordination of the work for which the Secretary for Overseas Trade will be responsible with the Treasury, Foreign Office, the Dominions Office, and other Departments concerned with external economic policy. Arrangements will be made for the training of members of the Foreign Service within the Board of Trade, for their making frequent visits to manufacturing and commercial centres in this country, and for rapid communication between them and the Board of Trade on commercial matters. The Trade Commissioner Service will be administered directly by the Board of Trade.

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Some More Coal Bill Provisions

The Coal Industry Nationalisation Bill merits careful study by British industrialists of all kinds, for the precedents set by it may be applied to a wider range of businesses. A feature of the Bill is the number of clauses—some thirty—which give the Minister power to make orders or regulations. No doubt this is a matter which will be taken up strongly on the Committee stage of the Bill. Clause 55, in particular, gives the Minister power to make provisions for punishing persons offending against regulations made; imposing the limits of time within which matters coming under regulations made in the Bill shall be done; and also for amending or repealing enactments, and for applying enactments with or without modification. This clause is so widely drawn that it would appear to give the Minister virtually unlimited powers. It may not be widely appreciated, also, that under the Bill the State could acquire coal treatment plants from industrial organisations. Compensation as laid down in Clause 23 may be of great importance to holders of various classes of shares in other industries. In a liquidation, preference shares normally would be entitled to compensation according to the articles of association, which in most cases provide for repayment at par. The Bill, however, lays down a principle of compensation on an income yield basis, and states that due regard shall be had to what security holders' relative expectations of income yield from their respective interests in the company would have been, if the Act had not been passed. Obviously, therefore, if a company receiving a sum as total compensation has high interest preference shares, some special payment over and above the par value may be expected for these holders.

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African Native Labour on Rhodesian Railways

The report of the commission appointed by the Governor of the Territory of Northern Rhodesia to investigate the grievances which gave rise to a strike amongst the African employees of the Rhodesia Railways has just been issued and affords some interesting reading on labour conditions. It is stated therein that the African employee has felt the effect of increased prices more than any other section of the community and that his wage buys less than half what it purchased before the war. The conclusion is reached that to ease these conditions by a cost of living allowance is not the best method of meeting the situation but that it is in the best interest of the African that he be given an increase of wage which will be permanent, and related to his needs over a longer period into the future. Attached to the report is a schedule of the scale of payments based on this principle and the minimum monthly wage recommended is 25s. against the present 15s., plus housing and rations. The greatest improvement is in the grades already most highly paid which policy is said to be justified by the importance to the future of the Territory of encouraging the African to advance himself. The commission is of opinion that the railway undertaking is in a position to bear a substantial increase of wages at the present time. Another recommendation is that the railways appoint a Secretary of African Affairs with welfare officers specially charged with the interest of Africans.

Irresponsibility of Public Utilities

A disquieting feature of modern tendencies in the organisation of State-sponsored public utilities, is the lack of responsibility of their direction and managements either to stockholders or Parliament. In the case of such statutory bodies as the Port of London Authority, the London Passenger Transport Board, and Central Electricity Board, the holder of the stock has no ready means of ventilating directly criticism of the manner in which the business is conducted. No annual meeting is held, and no Minister in the House of Commons is directly responsible. It would seem likely, if the provisions of the Coal Industry Nationalisation Bill are implemented, that a similar position will arise in respect of colliery undertakings, and if the present Bill is a precedent for nationalisation experiments in a wider field of industry, the disability will be broadened. Nominally the Secretary for Mines would be responsible for the deeds or misdeeds of the National Coal Board, but it will be very easy to shelter behind that Board and to claim that it is given a large measure of autonomy, with the result that neither the taxpayer nor the stockholder will be able to bring pressure on any board of a nationalised industry; the danger must be faced that the administration of these bodies increasingly may become divorced from the realities of commercial enterprise, and also may have weakened their sense of responsibility to the public.

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American Army's Tribute to S.R. Southampton Docks

On January 3, at the Southern Railway Docks, Southampton, Mr. R. P. Biddle, Docks & Marine Manager, received on behalf of the company a commemorative plaque presented by the 14th Major Port, United States Army. The plaque, placed on No. 8 gate, was unveiled by Colonel Sherman L. Kiser, Port Commander, 14th Major Port, who referred to the co-operation between his unit and the Southern Railway in their achievements at the docks during the war, and to the happy relations between the American and British personnel. He said that he hoped such relations could always be maintained between the two nations as a whole. Mr. R. P. Biddle, in the course of his reply, said the plaque would be a lasting memorial to the close co-operation between the 14th U.S.A. Port and the civilian staffs associated with the port of Southampton. No less than 4½ million personnel had passed through the port during the war, and nearly 5 million tons of military stores and equipment. There in Southampton they were proud of the way the dockers had pulled their weight during the war. They had done splendidly, as had the railway grades, the ship repairers, and many others. He hoped that co-operation, similar to that which had existed throughout the war between the American and British Service Departments, and the civilian dock organisations working in the area, could continue between the two great nations. He had been asked, he said, by his General Manager, Sir Eustace Missenden, to express to Colonel Kiser and his officers and staff the Southern Railway's appreciation of the friendly and efficient co-operation always extended to it, and the company's grateful thanks for the plaque.

* * * *

Post-War Rolling Stock Production

At the beginning of 1945 the main-line companies began to announce their post-war plans for making good wastage and arrears of construction of rolling stock caused by the incidence of war conditions since 1939. We have recorded and illustrated the several plans and prototype coaches of the four companies, and also the particulars and the results of the questionnaires on constructional details which the L.N.E.R. and Southern Railway issued to the public with the object of obtaining a cross section of passenger's views on the subject. Elsewhere in this issue we describe and illustrate the latest vehicle put into service by the L.M.S.R., a composite third-class brake coach embodying many new and improved features. These vehicles are part of the L.M.S.R. programme for 800 new passenger vehicles commenced early in 1945, and we are informed that, to date, 200 of these have been put into service and that the balance is coming off the production lines at the rate of eight a week, which must be considered good progress having regard to the difficult positions obtaining both in respect of labour and materials since the programme was instituted.

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Nobody to Blame

As already briefly recorded in our columns, the report of Lt.-Colonel G. R. S. Wilson on the accident near Llangollen, G.W.R., on September 7, 1945, a summary of which is given elsewhere in this issue, attributes no blame whatever to any person in connection with the occurrence. On the contrary, all those directly concerned with the canal maintenance, engineers and employees of the L.M.S.R., are acknowledged to have carried out their duties with all due care and diligence. It was unfortunate

that when the canal bank burst and the water carried the G.W.R. embankment away, the telephone and block circuits remained intact and thus no warning of the danger was given. The track was left suspended in the air and the early morning mail train ran into the gap and became a total wreck. Colonel Wilson, who was assisted in his inquiry by Mr. C. T. Gardner, Deputy Director of Canals, Ministry of War Transport, and had the expert advice of mining engineers, concludes that the failure, which there is no reason to believe anyone could have anticipated, most probably was due to the unstable character of the underlying boulder clay formation, in which voids had been eroded by subterranean water channels. A certain weakness had been noticed before, at and near the site of the burst, and some counterforts were put in. As the canal is now closed to navigation, the report recommends substituting piping over a length of some 400 yd. and that the conditions be reviewed at other points in the valley where the railway lies below the canal. The driver of the train was killed, but the fireman, although suffering under severe shock and with his wrist broken, walked a mile and a half to Llangollen to give warning. The guard was badly shaken, but walked back at once for two miles to Trevor signal box. It was difficult to clear the wreckage and 13 days elapsed before even single-line working could be put into operation.

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A New Proposal for a Compound Locomotive

Interest in the possibilities of compound locomotives in the British Isles is by no means dead, despite the fact that their use is now practically confined to the fine examples working on the Smith system, on the L.M.S.R., and the Great Northern Railway (Ireland). In a recent issue of our contemporary, *The Locomotive, Railway Carriage & Wagon Review*, there is an extensive and extremely interesting correspondence, stimulated by a letter from Mr. H. H. Davis, in the September issue, to the effect that, due to loading gauge restrictions, etc., compound expansion was impracticable for large modern locomotives in Great Britain. Several writers suggest ways in which large cylinders could be accommodated, giving machines practically as powerful as the mighty Chapelon 4-6-2 and 4-8-0 compounds in France, whose success and efficiency no one will dispute. Sir William Stanier's arguments in his Presidential Address to the Institution of Mechanical Engineers in 1941, in which he ruled out the practicability of compounding because, *inter alia*, it restricted journal dimensions, is shown to apply to a particular arrangement only. In any case, the idea is spreading that to avoid excessive diameter, four instead of two, low-pressure cylinders might be tried. Not only do we learn that M. Chapelon himself is considering this possibility, but also—most appropriately—the same issue contains a striking design for 4-8-0 to the British loading gauge by Mr. J. M. Doherty, embodying the same principle. In this case, the four low-pressure cylinders—two inside and two outside—are in line above the bogie centre. The high-pressure cylinders are also outside, but are located further back on the frames, just behind the bogie. The tandem arrangement, with a common piston rod, is used for the high- and low-pressure cylinders outside each frame plate. This plan results in very short and direct exhaust passages from the low-pressure cylinders.

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Hot Boxes

It is seldom in Great Britain that overheating of an axle-box has caused a serious casualty to a train; in a densely-populated country like this trains are under such constant observation that any considerable overheating is almost certain to attract notice before anything untoward has occurred. In sparsely inhabited parts of the United States, between the Middle West and the Pacific, for example, where diesel streamline trains are running at maximum speeds up to 100 m.p.h., it is another matter. For some time it has been the practice to fit all the journals of the axle-boxes on these trains with thermocouples, which in the event of overheating of any box cause a red warning lamp to light up in the driver's cab. This principle is now to be extended. The Pullman-Standard Manufacturing Company has announced that all its new cars will be equipped in this way, and that in the car itself a red warning light will be shown and a buzzer will sound if any one of the car axle-boxes overheats; while the boxes are running normally cool, a yellow light will be exhibited continuously. In American express trains each car carries its own attendant, or "porter," who will take the necessary action in any overheating emergency. When the fitting of these journal alarms has become general, it will then be possible to relay the alarm signal to the engine cab, as with the streamline trains already referred to. The disastrous derailment of the "Advance Congressional" of the Pennsylvania Railroad near Philadelphia, some years ago, due to a burned-out journal, would have been prevented had journal alarms been in use on that train.

Clouds on the Railway Staff Horizon

IT is the opinion of many railway officers that nationalisation, applied to British railways, would make very little difference to them, as they expect to get at least as good terms, either as to compensation or continuing employment and pensions, as they got on the amalgamations under the Act of 1921. But if the Coal Bill is a precedent, it certainly seems that they will not.

In a letter to the Editor elsewhere in this issue, a correspondent makes some very pertinent comments as to the absence of any definite provisions in the Coal Industry Nationalisation Bill for the continued employment of the existing staff by the proposed National Coal Board, or for the compensation of employees who may lose their employment as a result of nationalisation. We might add also that, seeing that the Bill was drafted by a Labour Government, it is somewhat strange that it appears to contain no provision for the continuance of existing wages and conditions of service. The indefinite nature of many clauses of the Bill is giving rise to uneasiness in several directions, and Mr. Arthur Horner, the South Wales Miners' leader, is reported in the press as saying that the miners could not forgo their right to withhold their labour in the event of a wage dispute. In this connection it is of interest that no reference whatever is made in the Bill to the continuance of any existing negotiating machinery. Further, Clause 35 states that regulations *may* be made for the payment of superannuation, pensions, and so on, but this section appears to be purely permissive and not obligatory, and no mention is made of the continuance of pensions.

The lack of definition in the Bill so far as it concerns employees is in sharp contrast to the detailed clauses 62 to 67 of the Railways Act, 1921, which dealt very thoroughly with wages and conditions of service, while the Third Schedule to that Act provided very extensive protection to existing railway officers and servants. Even the Ministry of Transport (Transfer of Railways) Bill, which was introduced in the House of Commons by Mr. J. H. Thomas in 1921, but was subsequently dropped, provided for the existing pension payments to be continued, for the continuance of existing superannuation funds, and for the option of membership of a new National Transport Superannuation Fund, as well as for the setting up by the Minister, in conjunction with the three railway trade unions, of machinery for adjusting disputes as to salaries and wages and conditions of service.

It does not necessarily follow that the example of the somewhat vague provisions of the Coal Industry Nationalisation Bill will be followed when a railway nationalisation Bill is drafted, but bearing in mind that the Government declined the offer of assistance by the colliery owners in drafting the Mines Bill, there is a possibility that the railway companies may be similarly ignored. If the provisions of any railway nationalisation Bill affecting the railways are equally vague, the sponsors of the British Railway Officers' Guild may well find much greater scope for their organisation in securing reasonable treatment of railway staff than ever they contemplated when they launched the guild.

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"A Modern Locomotive History"

WITH "A Modern Locomotive History" as the title for his paper, Mr. E. S. Cox, M.I.Loco.E., of the Chief Mechanical Electrical Engineer's Department, L.M.S.R., entertained the Institution of Locomotive Engineers at their meeting in London on January 2. The explanatory subtitle was "Ten Years Development on the L.M.S.R.—1923-1932." Mr. Cox already has made a notable reputation for himself as an author of technical papers on locomotive practice; he has now ventured, with great success, into the difficult terrain of locomotive history.

As a result, we have been treated to the finest piece of locomotive history penned since the days of Ahrons. Mr. Cox is never dull; he tells a fascinating and complex story with an easy mastery and a wealth of intimate detail, spiced with shrewd observations on the interplay of personalities and policies during these vital formative years.

It is an amazing story, even despite the fact that Mr. Cox obviously has left much unsaid—for a variety of reasons We learn something of the tremendous conflict between irreconcilable differences of outlook and tradition in the first four or five years,

until something like a set policy began to emerge. The first two years, during which the late George Hughes was Chief Mechanical Engineer, undoubtedly produced the most difficult problems which ever confronted any holder of that exacting office. One of the satisfying facts emerging, though tardily, from the paper is the great ability of George Hughes as a locomotive designer. We now see, more clearly than ever before, the full measure of his professional stature. " Hughes knew the value of the big engine, master of its job, and might have had the distinction of producing the first Pacific design on the L.M.S.R. It was his misfortune, however, to have to work with a newly-formed Operating Department imbued with the small engine outlook . . ."

After preliminary trials of the constituent companies' engines over different parts of the newly-formed group, a system of statistical records known as " individual costing " was introduced, which enabled the amount spent on repairs for every engine on the system to be studied, and even allocated to the principal component parts of the engine. " This magnificent tool of management," as Mr. Cox calls it, was valuable in enabling long-term comparisons to be made between different engine types; it was indispensable during the early period of trial of existing types, but has probably proved to be a somewhat expensive luxury now that the need for comparing individual engine costs is not nearly so urgent. On their showing, under this system of costing, the various types of engines were tested, and only those that gave the best results were perpetuated.

The whole of the Operating Department was then, as already mentioned, under Midland influence, and pursued a " small engine " policy, strongly resisting proposals for new designs for large engines. Double-heading was frequent and by the time Hughes retired in 1925, to be succeeded by Fowler, the need for larger locomotives was becoming pressing. The change in leadership probably, however, was a factor in producing further delays; Fowler, we read, turned his ideas towards a 4-6-0 development of the existing 4-4-0 compound, but by the end of that year had changed his mind, and work was begun on a 4-6-2 compound, based on a 4-6-2 simple engine designed by Hughes in 1924 but never constructed. Then followed, in 1926, practical experiments with " the most modern, but least-known, compound to run in this country," L.M.S.R. No. 10456, a Hughes 4-cylinder 4-6-0 converted from simple expansion.

All these steps meant delay on delay, and eventually the need for large express engines became so desperate that in 1927 arrangements were made hurriedly with the North British Locomotive Co. Ltd. for fifty 4-6-0 locomotives. The actual drawings were made by the firm, as is stated in the paper, but an interesting revelation made by Mr. Holcroft in the ensuing discussion was that a full set of drawings of the Southern Railway " Lord Nelson " class was lent to the L.M.S.R., and formed the broad basis of the design, with the main difference that three cylinders, instead of four, were fitted. With the arrival of these engines, a definite L.M.S.R. type began to emerge, which a few years later was much improved and modernised by Sir William Stanier.

The Crewe contribution to the story is of great interest, and in the future may prove to be even more significant than the paper represents it to be. For it was the Crewe engine, " vigorous and noisy, cheap in first cost, effective traffic machine for the schedules then in force; but relatively expensive to run and maintain " that responded so beautifully to small but effective modernising improvements. By fitting Caprotti poppet valve gear to a " Claughton " 4-6-0, " at a single stroke an indifferent steam distribution was improved out of recognition, and an engine whose normal mode of progression on the level was 30 per cent. cut-off with a partially-opened regulator now ran at 10 per cent. cut-off with full regulator." Improved tube spacing and ashpan design yielded almost equally impressive results. Again, the Crewe 0-8-0, once given redesigned cylinders and long-travel valve gear showed a 30 per cent. reduction in coal consumption per drawbar-horsepower-hour. Mr. Cox, perhaps with one eye on modern American developments and the other on the future of British practice seems —rightly, we think—to be sympathetic to poppet valves, which undoubtedly have given better results on the L.M.S.R. than on other lines in this country.

It is impossible here to refer individually to the many tentative locomotive designs, sketched in the paper, which never came to fruition; but they form an extraordinarily interesting study, and many have exerted their due influence on actual construction. A really progressive trend, however, is shown to have been evolved out of many complex factors and played its part in carrying on the general advance of British locomotive practice. Mr. Poultney, in commenting on the paper, happily summed up this advance by comparing two Crewe-built engines—each, incidentally, named *Princess Alexandra*—one, a 2-2-2 of the " Problem " class built in 1864; the other one of the latest 4-6-2s. The 2-2-2 weighed 27 tons and developed a maximum horsepower of about 500; the 4-6-2 weighed 108 tons and developed a maximum horsepower of over 3,000. The weight of metal required for the development of 1 h.p. had thus been reduced from 121 lb. per h.p. to 79 lb. per h.p., and therein lay one of the most telling tributes to the advances made between the construction of the two machines.

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U.S.A. Railway Statistics

IN our December 28 issue, an article entitled " British Railways Statistics Secrecy " commented on the ample details circulated by the Association of American Railroads to show, month by month, the operating revenue and expenditure of its member companies. Even more remarkable is the ability of the Association's Bureau of Railway Economics to summarise the financial and statistical returns for the whole year with such despatch that a review of railway operations appears in the pages of our contemporary, the *Railway Age*, early in January. There is an element of estimate in some of the figures, but they are revised by the middle of March when the review is published in pamphlet form. In October, the A.A.R. sends out a further analysis of the previous year's statistics based mainly on official summaries of the Interstate Commerce Commission.

The analysis for 1944, to hand at the beginning of December, consists of 13 statements giving a comparision of results for the 10 years 1929 and 1936 to 1944. The year 1929 is included because it was the peak period of peacetime railway performance, surpassing all subsequent achievements until the second world war. Each statement thus shows the trend of movement over the last 15 years in respect of items such as investment, net income, dividends, taxes, paybill costs, rolling stock, and operating statistics.

At the end of 1944 the property investment of the American Class 1 main-line railways stood at 27,900 million dollars. That was 1,860 million dollars above the 1929 figure. Only 11 additional millions were invested between 1929 and 1938, but in the 5 years 1940-1944, the railways spent $2,520,460,000 on capital improvements. Since 1929 about 13,000 miles of railway have been abandoned, but 38 per cent. of capital expenditure in recent years has been on permanent way and structures, the installation of heavier rail alone costing an average of $33,000,000 a year. The remaining 62 per cent. of capital expenditure was needed to provide new equipment, principally locomotives and wagons.

The net railway operating income and the rate of return it represents on total investment are tabulated below:—

Year	Net railway operating income (millions)	Rate of return Per cent.
1929	$1,252	4·8
1938	$373	1·4
1940	$682	2·6
1941	$998	3·8
1942	$1,485	5·5
1943	$1,360	4·9
1944	$1,106	4·0

The next table shows fixed and contingent charges ; net income available for additions to property, reserves and dividends ; and the total dividends paid in cash.

Year	Charges (millions)	Net income (millions)	Dividends (millions)
1929	$693	$897	$490
1938	$627	$123 def.	$83
1940	$635	$189	$159
1941	$637	$500	$186
1942	$717	$902	$202
1943	$646	$873	$217
1944	$609	$668	$246

Evidently the railways did not pay excessive dividends during the emergency, but conserved their resources and brought down " charges," including funded debt and interest, to the lowest level reached over the last 15 years. On the other hand, they paid in 1943 and 1944 no less than 20 per cent. of their gross operating revenues in taxation. In 1929 the corresponding percentage was 6 and the total tax bill was $397,000,000, as compared with $1,846,000,000 in 1944. The tax burden goes a long way to explain why net railway operating income represented nearly 20 per cent. of gross operating revenues in 1929 as compared with only 11.7 per cent. in 1944. It may fairly be claimed that during the war the

American railways, though they remained in private ownership, were working for the State almost as completely as our railways have done under Government control.

Much the largest item of current expenditure in the U.S.A. was labour, which aborbed nearly 39 per cent. of gross operating revenue in 1944. The number of employees in that year was about 50 per cent. over the 1938 census figure ; the average employee earned 47 per cent. more and the aggregate paybill for the year 1944 amounted to $3,858,000,000, nearly two-and-a-quarter times the 1938 total. One cannot but admire the thoroughness with which these statistics are prepared. " Number of employees " represents the average of 12 mid-month counts in each year. Our Ministry of War Transport used to publish a census of railway staff based on one record in the month of March.

The same thorough policy gives America an analysis of its freight traffic into six groups, sub-divided into 156 commodities. Under each head are stated the number of wagons loaded, the tonnage carried, and the gross freight revenue. By far the largest traffic was coal, which filled 8,811,000 wagons to the weight of 57 tons on an average. The total tonnage of 501,155,000 was more than twice the whole output of Great Britain in 1937, the last good year for our coal trade. Over 100 million tons of iron ore—nine or ten times the quantity moved in this country—were carried by 1,643,000 wagons. That gives a large average wagon load of 61 tons. Another staple traffic yielding a high average load of 50 tons was wheat ; the heavy crop in 1944 required 778,000 wagons, which earned $223 apiece. While our Ministry of Food was doling out a few boxes of oranges, the Americans loaded 169,400 wagons with oranges and grapefruit. These must be paying loads, as they averaged 23 tons and brought in $453 of revenue ; many of them moved over long distances. Fresh peaches loaded to a weight of only 12 tons a wagon, tomatoes to 13 tons, and fresh grapes to 17 tons. Between 300,000 and 400,000 tons of each of these products were carried.

Perhaps the most striking sign of activity across the Atlantic in 1944 was the forwarding of 13,825,000 wagons of manufactured and miscellaneous goods. The average load of these wagons was 31 tons and the average freight charge was $8.7 a ton. At a time when our Press cannot obtain a sufficient supply of paper for the adequate reporting of parliamentary debates, it is a little galling to read that in the States 40,000 wagons carried 1,161,000 tons of newsprint in 1944, and 77,000 wagons were filled with 2,239,000 tons of printing paper. We envy our American friends the possession of these huge stocks. The A.A.R. can have its statistics printed on large sheets with a smooth white surface and ample margins, making the study of the statements a real pleasure, and the figures tell a wonderful story. The U.S.A. railways are happier than our own lines in having their results published in detail before interest in wartime achievements has grown cold.

Dunkirk and the G.W.R.—Another Episode

By R.E.—R.E.

IN the recently published booklet " Dunkirk and the Great Western," by Ashley Brown, the story of the G.W.R. steamships is told, but there is, however, yet another link between the G.W.R. and Dunkirk in connection with those memorable days, the story of which it has not been possible to publish hitherto. On September 13, 1939, the 151st (G.W.) Rly. Construction Company, Royal Engineers (Supplementary Reserve), sailed to France with the B.E.F. with a strength of six officers and 278 other ranks from the staff of the G.W.R. In April, 1940, the company was detailed to form part of the British Force, the purpose of which was to resist the German Army should it invade Holland and Belgium. This happened, and on May 11 the company assembled at Lille, where it remained in its special train until a week later, when orders were received to move back to Boulogne, the great withdrawal having commenced.

By chance the train was directed *via* Dunkirk, at which place it arrived midday on May 20, where it was side-tracked for what was understood to be the changing of engines. Dunkirk that bright May day seemed peaceful and quiet, but the reason was soon apparent, for the docks were not working, no trains were moving, and the whole populace was evacuating the place in the typical continental way, by road, on foot, or in any kind of vehicle. The docks had already suffered from bombing.

After having issued the midday meal, the Company Commander decided to make some enquiries at the station about an engine to continue the journey, but none was forthcoming and no one seemed to care. In his travels, however, the O.C. met a senior officer from the Transportation Directorate who had just arrived to take charge of the working of the port as the regular staff had left and as vessels with stores were expected, the 151st Company was ordered to remain. The dockside being considered unsafe, a billet was arranged in Malo-les-Bains nearby, to which the men marched that night and where they were accommodated until they left a week later.

The first vessel expected carried some 1,000 tons of urgently needed and vital supplies for the three corps of the retreating army, but the arrival of the ship was delayed 24 hours. When she did berth, the company was organised to work her discharge in two shifts and the unloading continued all the daylight hours, with the supplies being loaded direct into 10-ton lorries for immediate transport to the forward areas.

An air of intense concentration pervaded these early hours soon after the unit's arrival in Dunkirk, the military population of which seemed to swell rapidly with the mushroom growth of an army base organisation, to which remnants of Line of Communication troops were hourly added. Rumour was rife and demanded the strictest suppression, but when news of the fall of Boulogne and Calais filtered through, the reaction of the 151st men was common with that of the other British troops in the area—that every effort must be made to keep the front line troops supplied.

The second vessel to arrive contained ammunition of all kinds and she was berthed nearby. Her unloading was commenced by a detachment of the 151st Company, assisted by a party of R.E. stevedores, who had arrived by ship from England. Shortly afterwards, more 151st men were detailed for the work as the first ship approached completion and later, a General Construction Company R.E., was also detailed to assist. It is difficult after the passage of years and with only memory to rely on to describe the conditions under which the men were working, but it is perhaps sufficient to say that throughout the days and nights air raid warnings were in operation almost continuously. Explosive and incendiary bombs fell at far too frequent intervals from enemy aircraft that seemed at the time to have the sky to themselves. However, the company was lucky, for not one of the vessels was hit and the casualties suffered were very small in comparison with what they could have been.

Perhaps one of the most uncomfortable occasions occurred when the third ship, carrying supplies, had berthed alongside No. 4 Shed, constructed on a mole. On the night of the ship's arrival, the O.C. of 151st Company had decided that the first working party for the next day should sleep within the protection of a reinforced-concrete grain warehouse, built at the dock end of No. 4 Shed, to avoid loss of time in starting work the next day. The General Construction Company was also billeted in the same place. Next morning, about seven o'clock, when unloading was well into its stride, an air attack developed suddenly, and the shed received several direct hits, causing serious casualties amongst the personnel of the General Construction Company and starting fires in the shed and against the warehouse. A cased petrol ship had also berthed at the quay on the other side of No. 4 Shed and as several lorries, parked in the shed, were being rescued, one of them was made fast to a rope from the petrol ship to warp her away from the danger zone. Shortly afterwards, the vessel was towed to another berth, where her unloading was also taken in hand by the 151st Company and detachments from other units which had fallen back on Dunkirk.

At 10.30 p.m. on May 27 the company suddenly was ordered to march into Dunkirk and embark immediately on the s.s. *Maid of Orleans*, which sailed at 3.30 a.m. the next day. Dover was reached about 8 o'clock that morning and, thanks to the efforts of those responsible at home, the men were all safe in a comfortable camp near Longmoor that night.

For the work at Dunkirk the O.C., one subaltern, and three N.C.Os. each received a mention in despatches as well as one former officer of the unit who was supervising the work. The R.E. Stevedore Officer who supervised the discharge received the M.C. The 151st Company with quite a few of the men who were at Dunkirk returned to France in 1944 and is now part of the B.A.O.R.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Great Britain as a Tourist Centre

The Travel Association,
6, Arlington Street,
St. James's, S.W.1. January 2

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—My attention has been drawn to an article appearing in your columns under the title "Great Britain as a Tourist Centre." This Association is well aware that the present is not the time for tourists to visit this country. Indeed, the Association is issuing to American business visitors, on their arrival, a pamphlet explaining the inevitability of some of the discomforts which they will experience.

No one will deny, however, that the present is the time to prepare for the future, and it is with the future that the present work of the Association is concerned. Great Britain should, I am tempted to say, must be ready to receive visitors from overseas in 1947, and it is that year which the Travel Association has in view.

Yours faithfully,
R. A. L. HARTMAN,
Publications & Publicity Manager

[In our editorial note we did not question the desirability of attracting tourists. Our point was that the amenities at present available were insufficient. In our view, it seems a little optimistic to imagine that in 1947 the improvement in these amenities, especially in the provision of hotels and so on, will have been sufficiently great.—ED., *R.G.*]

British Railways Statistical Secrecy

Hampstead, N.W.3. January 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—All who are interested in railway economics will be grateful to you for the article under this heading printed in your December 28 issue. Three days later the Association of American Railroads' statement of September revenues and expenses reached London. It revealed a striking change in the trend of traffic. As compared with September, 1944, the aggregate operating revenues of the main line railways decreased by 15 per cent. Freight revenue fell off by 17 per cent. and the weekly "freight car loading" returns indicate that the decline continued in October. During the five weeks ended November 3, the number of wagons loaded was 488,000 less than in the corresponding period of 1944—a reduction of slightly over 10 per cent.

Total operating expenses for September last are not directly comparable with the figures for September, 1944, because the period of amortisation for defence projects has been shortened and over 100 million dollars were charged to operating expenses in September, 1945, in excess of the normal monthly debit. The net railway operating income of 44 million dollars cannot therefore be compared fairly with the figure of 90 million dollars for September, 1944, but there is no doubt that the operating ratio is moving upwards.

What an advantage the American people have over us in knowing how their railway returns are fluctuating from month to month! The railway position in any country is a pretty reliable measure of its industrial development, and the Ministry of War Transport should be urged to drop its wartime policy of suppressing statistics with the advent of the New Year.

Yours faithfully,
STATISTICIAN

Railway Staff under Nationalisation

London. December 31

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In view of possible further developments of the nationalisation policy of the present Government, I think your readers may be interested to consider the provisions of the Coal Industry Nationalisation Bill which relate to the transfer of the existing staff of colliery companies to the National Coal Board which the Bill proposes to set up, and which is to become responsible for the future operation of the coal industry in this country. The provisions which relate to "contracts for personal services" are to be found in Clause 6 and the Second Schedule to the Bill, and it seems clear that there will be no legal obligation on the National Coal Board to continue the employment of the present employees of colliery companies unless the services of such employees are rendered for the purposes of "colliery production, electricity, transport, sales, or welfare activities." Unless, therefore, a very wide interpretation is given to the term "colliery production," the Board will be placed under no obligation to give employment to the present administrative, accountancy, and secretarial staffs of the colliery companies.

It is also noteworthy that the Bill contains no provision which entitles any employee who may lose his employment as a result of nationalisation to compensation, and that the Clause (No. 35) which relates to pensions and superannuation rights of transferred employees is vague and uncertain in its effect, depending as it does on the terms of regulations to be introduced by the Minister when the Bill becomes law.

Railway officers will note that the provisions of the Bill are very different from, and on any interpretation give very much less protection than was given to the employees of the constitutent companies by, the Third Schedule to the Railways Act, 1921, and in the face of the Bill they can have little confidence that the Government will be prepared to follow that precedent when the railway industry comes in its turn to be nationalised.

Yours faithfully,
STYX

"Read Wherever There Are Railways"

White Gates, Lindfield,
Sussex. December 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—You supposed (editorially) in your issue of October 26 that railway authorities in Germany continued to read *The Railway Gazette* throughout the late war.

If you want evidence of this, it can be found in a railway source-book published in 1941 by Henschel & Sohn, the well-known locomotive builders of Kassel. Entitled "20,000 Schriftquellen zur Eisenbahnkunde" and edited by Dr.-Ing. Kurt Ewald, it contains on page 64 the following references:—

The Railway Training Centre, R.E., Longmoor, *Gaz.*, 1939—I, p. 20;
The first mobile railway workshop train, recently completed by the Southern Railway for use with the B.E.F. in France, *Gaz.*, 1940—I, p. 463;
Transport on the Maginot Line, *Gaz.*, 1940—I, p. 417.

It all shows, if any more proof were needed, that you can't be too careful in these matters.

Yours faithfully,
R. M. ROBBINS

[In our editorial note referring to the fact that for 35 years the slogan of *The Railway Gazette*, "Read Wherever there are Railways," has been familiar to railway men throughout the world, we pointed out that twice world wars had caused us to suspend its use as a purist or pernickity person might have argued that the phrase "Read Wherever there are Railways" could be taken as implying that we were trading with the enemy. We added that as a matter of fact we thought that throughout the war our paper had reached railway authorities in Germany and other enemy countries through agents in neutral territories, which had justified all the censorship restrictions. Similarly, we, under licence from the Board of Trade, had secured through neutral countries German and Italian technical publications.—Ed., *R.G.*]

Pilfering on Railways

Police Office, L.M.S.R.
Euston Station. December 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The article in your issue of December 7 and the letter from Mr. Jesper in your issue of December 21 describing how he dealt with thieving Arabs in North Africa by shooting them on the spot, make interesting reading, but unless we can adapt to the railways of this country the methods referred to I am afraid the contributions are not very helpful to us in our troubles. Because of insular prejudices it would be difficult to introduce the happy and effective method used so successfully by Mr. Jesper.

As a representative of our far-flung Empire, he knows there is a great gulf between a mere Arab and an Englishman. The former, of course, can hardly be described as a real human being, and one caught in the dastardly crime of theft richly deserves to be shot at sight. But everyone knows that an Englishman is so vastly superior a being that even when caught in the act of stealing he must be given every protection afforded by the law (described by no less an authority than Dickens as an ass), and when by every test he is quite obviously guilty he must be regarded as innocent until such time as he is found guilty in a properly constituted Court of Law. And the majesty of the law is so imbued with humanitarian principles that the convicted thief may quite reasonably expect to be bound over, particularly if he is a first offender (that is, the first time he is *caught*). Further, the police officer must deal with the matter very carefully, or run the risk of getting into serious trouble himself and having his

prisoner discharged without a stain on his character. How could the English thief enjoy all these perfectly delightful amenities if a police officer were allowed to shoot him at the time of the commission of his crime?

Thefts on the railways are more serious than ever before, but notwithstanding this an Englishman's privileges must be preserved and his rights upheld at all costs, even if in the process Mr. Jesper has reluctantly to surrender his gun.

The following particulars may be of interest:—

PROSECUTIONS FOR THEFT ON BRITISH RAILWAYS SINCE THE COMMENCEMENT OF THE WAR

Englishmen (including Scots and Welshmen)	x,000
Arabs	Nil

Yours faithfully,
F. R. PRATT,
Chief Clerk

Accident near Reading, September 12, 1855

Lillycombe, Porlock, January 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The head-on collision near Reading on September 12, 1855, in which five were killed and ten seriously injured, is attributed in your "Railway Handbook" of 1945-46 to the G.W.R., whereas it occurred on the South Eastern Railway, and was the worst of four accidents on that line in 1855, on which the Board of Trade published a special report containing a very scathing criticism of the directors for reducing and overworking their staff.

None of them is mentioned in Dendy Marshall's "History," although this is said to include all accidents on the Southern Railway!

I believe Haydn's "Dictionary of Dates" is the foundation of the libel on the G.W.R., and the mistake has never been corrected.

Yours truly,
E. T. MACDERMOT

L.M.S.R. Change in Locomotive Practice

"Three Ways," 43, Warwick Road,
Coulsdon, Surrey, December 31

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The article published on page 635 of your issue of November 23, 1945, on the subject of the adoption by British railways of rocking-firebars, self-cleaning smokeboxes and ashpans, will be read with interest by locomotive engineers all over the world. It is, however, fortunate that you have covered this article by an editorial on page 529, and it is pleasing to note that you have laid special emphasis on the fact that these introductions are not claimed to be original.

It does seem regrettable, however, that the adoption of these old and tried improvements should only be brought about on British railways by the second world war, and the presence of American locomotives in this country. With the trend of current thought it is desirable that we should give credit where it is due to British practice and ingenuity, and not to be for ever disclaiming our own efforts and vaunting those of other countries.

The American locomotive has some very good points, but in such matters as design of ashpan and firegrate it should not be necessary for us to await their arrival in this country to stir up local innovations. The British locomotive industry has been in the habit of fitting all of these items for the past thirty or forty years, and it does seem regrettable that during that period the British railways could not have observed the many locomotives being shipped from British ports *via* their lines for the overseas railways of the world. Long years of designing experience are behind the British locomotive industry in these matters, which enables it at the present day to meet the requirements of overseas railways not only in the Dominions and Colonies, but in the open markets of the world.

You have said that these innovations became necessary due to war conditions and the need to save fuel. All these circumstances existed years ago.

It may interest your readers to know that one of the British locomotive building firms supplied rocking-firebars on locomotives for overseas as far back as 1898 and smokeboxes of a self-cleaning type on engines built in 1904.

May I enter a plea for a little more collaboration and less insularity!

Yours faithfully,
M. A. CRANE

Mechanisation and Hump Layout

South African Railways & Harbours,
Office of Chief Civil Engineer,
Johannesburg. November 23.

TO THE EDITOR OF THE RAILWAY GAZETTE.

SIR,—I read with interest the article "Recent Signalling Developments" in your issue of July 13, 1945. It would be appreciated if in dealing with an article on hump yards, the profile could be given for the yards at Hull and Toton.

The writer designed one of the first hump marshalling yards in the Union of South Africa, and is particularly interested in hump yards and any information re yards in actual operation would be welcome.

Is any balancing line laid down where retarders become essential? That is, what is about the intensity of traffic to be marshalled when mechanisation of the yard operation becomes desirable?

Yours faithfully,
A. F. BRUYNS-HAYLETT,
B.Sc., A.M.INST.C.E., M.INST.T.

(The profiles of the Hull and Toton yards were published respectively in our issues of January 24, 1936, and August 18, 1939. Concerning the line of demarcation between manual and mechanical operation, it is almost impossible to give any hard and fast rule. The actual traffic is not the only consideration, and without a complete acquaintance with the local circumstances, and traffic requirements, it would hardly be possible to give considered opinion. We hope in a future issue to publish an article dealing with the factors involved in the design of mechanised marshalling yards.—ED., *R.G.*)

Publications Received

Road Transport: A Victory Review of Peacetime Problems. — Edited by Charles F. Klapper. London: Staples Press Limited, Staples House, Cavendish Place, W.1. 11 in. × 8½ in. 48 pp. Price 2s. 6d.—In a prefatory note, the reasons for this brochure are described. Briefly, the publication is stated to be an endeavour to present to the thoughtful reader a picture of road transport activities which will give some clue to future trends, and enable him to draw his own conclusions on problems in which he takes an interest. During the 20 years between 1919 and 1939 the whole social life of Great Britain was changed by the development of road motor transport, but the changes effected, although of tremendous import, took place so gradually that many fail to realise to what extent they are indebted to the internal-combustion engine and the various road transport undertakings for the greater ease of reaching work (at any rate for part of the journey), for securing entertainment, for shopping, and for obtaining deliveries of all types of commodities. The Editor, who is Honorary Secretary of the Omnibus Society, himself contributes an article "How the motorbus has changed the face of England," and he is ably supported by various expert writers in the presentment of other features of the subject. "United action in road transport" is described by the late Mr. J. H. Turner; "How parcels-carrying by road is organised," is outlined by Mr. C. S. Dunbar; and road and rail co-ordination is dealt with by Messrs. Roger Sewill (Chairman, Road Panel), and A. E. Sewell (Chairman, Railway Panel) of the Road & Rail Central Conference. In passing, it is a quaint chance that has caused one of the few typographical errors in the brochure to call this the Road & Rail *Control* Conference. "The trader's view of road transport" is ably outlined by Mr. R. R. J. Plummer; and the "Slow trend towards large transport groups" is shown clearly by Mr. H. G. Chambers. The brochure is well-illustrated and an accurate survey of the position for members of the general public.

War Emergency British Standard Specification No. 986 of 1945 for Concrete Railway Sleepers.—By the British Standards Institution, 28, Victoria Street, S.W.1. 8½ in. × 5½ in., 18 pp., and drawings and tables. Price 2s. This revised specification sets out data for the design and manufacture of both ordinary and pre-stressed r.c. sleepers to up-to-date standards for primary, secondary, and tertiary grades of track. Though admittedly, additional experience of these sleepers under higher running speeds will almost certainly call for further revision of the specification, all relevant information at present available is included. The specification has due regard for the necessity of conserving materials and includes recommendations with regard to suitable types of fittings and other relative features. There are three appendices.

The Scrap Heap

G.W.R. London's Biggest Milkman

London's biggest milkman in 1945, the G.W.R., delivered more than 85 million gallons to London's main milk depots. Two-fifths of London's population were supplied with milk brought in 1,700 special milk trains from Devon, Cornwall, Dorset, Wiltshire, and South West Wales.

* * *

Hail the Restaurant Car

From the last day of 1945 a number of west-bound trains will have their restaurant cars restored to them. This news completes a series of similar announcements by other railway companies, and leaves the restaurant car, as it were, fully re-established. It cannot fail to stir even those who will be staying at home. Indeed for them the thrill may if possible be heightened by the thought of the obstacle race along the corridor. It is hard immediately to cast aside the habits of years; the traveller has grown accustomed to taking his own nose-bag with him; he has come to believe that the supreme good fortune of a seat is only to be deserved or retained by sitting as if glued to it by cobbler's wax. On a sudden to contemplate the return of the restaurant car is almost too much happiness. These, however, are graceless reflections unworthy of anyone who can still enjoy travel for its own sake. There are two glories of a journey, the glory of sandwiches (with a hard-boiled egg) to be eaten in the carriage and the glory of the restaurant car. Both shine very bright and both have that quality of the true romance which consists in doing commonplace and comfortable things in a relatively exciting and uncomfortable manner. —*From "The Times"*

RAILWAY QUESTIONS AND ANSWERS

Statement: Conditions of railway workers (hours, canteens, holidays, welfare, etc.) which have always been notoriously bad, would be infinitely better under State ownership.

Answer: The fact is that the conditions of service, including hours and holidays, are governed by agreements made with the railway trade unions or are the results of awards by independent arbitrators. These conditions compare favourably with those of workers employed in State establishments or in industry generally. Moreover, the negotiating machinery provided for in the national scheme for railway staffs, whereby any questions affecting conditions, etc., may be raised, considered and dealt with, is second to none. As to canteens, such little demand as there was for them before the war was duly met. It is only since the war and the introduction of rationing that the demand for canteens for railwaymen has assumed large proportions, and in spite of the manpower difficulties and shortage of materials—in both cases the Government is the arbiter of what is available—considerable success has been achieved in keeping pace with the demand for new canteens. Since the commencement of the war the main-line railways had, by May, 1945, opened 373 new staff canteens and additions are still being made.—*From "Answers to Questions and Statements," issued by the British Main-Line Railway Companies, 22, Palace Chambers, London, S.W.1.*

* * *

Great Britain as a Tourist Centre

At the present time there are few things more difficult to find than accommodation. The shortage is acute, and the remedy is still far off.

In Great Britain 23,990 hotels and licensed houses have been damaged by bombs, and of this number 7,803 were in London. In addition to this, 2,699 hotels, besides numerous blocks of flats and private residences, were requisitioned by the Government.

It takes nearly three years to collect sufficient coupons to enable one to appear decently clothed in public!

Under the heading of "Annoyances at Large," comes so wide a choice that we are at a loss where to start. To a long list of impossibles could be added a longer list of unprocurables, but to the American, with his love of a clean shirt, the lack of laundry services will probably cause most annoyance.—*From a pamphlet issued by the Travel Association.*

* * *

L.M.S.R. "Carry On" Aspirations

The front cover of the December, 1945, issue of the L.M.S.R. staff newspaper "Carry On"

100 YEARS AGO

From The Railway Times, *Jan.* 10, 1846

DIRECT LONDON AND MANCHESTER AND THE DIRECT LONDON AND MANCHESTER INDEPENDENT RAILWAY COMPANIES.

PROVISIONAL DIRECTORS.

Direct London and Manchester Railway Company.	*Direct London and Manchester Independent Railway Company.*
John Dillon, Esq.	Col. the Hon. L. Stanhope.
A. Caldecott, Esq.	D. Ainsworth, Esq.
W. Cash, Esq.	John Brooks, Esq.
J. W. Deacon, Esq.	M. T. Bass, Esq.
John Gladstone, Esq.	Major Croft,
Richard Hopper, Esq.	Jeremiah Clarke, Esq.
Mr. Alderman Hooper.	R. W. Johnson, Esq.
William Lawrance, Esq.	J. J. Keene, Esq.
Mr. Alderman Sidney.	William King, Esq.
Thomas Sheppersen, Esq.	G. P. Livius, Esq.
William White, Esq.	H. Wardle, Esq.
J. S. Wells, Esq.	Major Waller.

The Provisional Directors of the two Companies, formed for making a direct railroad from London to Manchester, announce—

That deeming it injurious to the interests of their constituents to expend their money in double applications to Parliament for the same purpose, they have agreed that only the Direct London and Manchester Railway Company shall apply to Parliament for a Bill for making the railway.

That the two Companies shall be united into one when the Bill for making the railway shall have received the Royal assent.

That the proceedings of the two Companies shall be governed by an equal number of Directors.

That the present Chairman of the Direct London and Manchester Company, John Dillon, Esq., shall be the Chairman, and that Andrew Caldecott, Esq., and the Hon. Col. Leicester Stanhope, shall be the Deputy-Chairmen of such 24 Directors.

That Sir John Rennie, J. U. Rastrick, Esq., and George Remington, Esq., shall be the Engineers of the said two Companies.

That Messrs. Ashurst and Son, Messrs. Sudlow, Sons, and Torr, and John Owens, Esq., shall be the Solicitors of the said two Companies.

The Directors also think it right to state that the whole of the plans, sections, and books of reference have been duly deposited with the Clerks of the Peace of the respective counties and towns, at the Board of Trade, and at the Parliament offices, as required by the Standing Orders of the Houses of Parliament.

The Engineers have reported that the distance of the Direct London and Manchester line from London to Manchester, will be 174 miles, 6 furlongs, whilst the three other lines enumerated in the following statement, all exceed that distance, and one of them, the London and Birmingham, by as much as 22 miles.

From London to Manchester, by the London and Birmingham, Grand Junction, and Manchester and Birmingham lines, viz. —

	Miles.	Miles.	Fur.
From London to Birmingham	112¼		
From Birmingham to Crewe	54		
From Crewe to Manchester	31		
		197	4
By Direct London and Manchester line		174	6
Saving of distance		22	6

By the Report of the Board of Trade, the distance from London to Manchester, by way of Rugby, the Trent Valley, and the Manchester and Birmingham line will be, when the Trent Valley line is completed

		188	4
By Direct London and Manchester line		174	6
Saving of distance		13	6

The annexed statement will show the saving of distance between Manchester and Leicester by the line of the Direct London and Manchester, and the following lines:—

From Manchester to Rugby	114¼		
From Rugby to Leicester	20		
		134	2
By Direct London and Manchester line		82	6
Saving between Manchester and Leicester		51	4

From Manchester to Leicester, by the North Staffordshire scheme:—

	Miles.	Fur.	Miles.	Fur.
From Manchester to Macclesfield	17	3		
„ Macclesfield to Wellington	44	7		
„ Wellington to Derby	6	2		
„ Derby to Leicester	29	2		
			97	6
By Direct London and Manchester line			82	3
Saving over North Staffordshire between Manchester and Leicester			15	3

JOHN DILLON,
Chairman of the Direct London and Manchester Railway Company.
LEICESTER STANHOPE,
Chairman of the Direct London and Manchester Independent Railway Company.
SIDNEY M. HAWKES,
Secretary to the Direct London and Manchester Railway Company.
HENRY W. MATTHEWS,
Secretary to the Direct London and Manchester Independent Railway Company.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Transport Survey by Minister

The Minister of Transport, Mr. F. C. Sturrock, stated at a recent conference that he hoped the 15 per cent. tax on railway fares would be taken off in the next budget. An inquiry was now being made into air fares, and it was hoped that when the Skymaster aircraft arrived early in 1946, air fares would be reduced.

Mr. Sturrock pointed out that no fewer than 810 trains a day were using Johannesburg station, and there was not a train going into that station which was not being delayed. That position would get worse until they could effect the necessary improvements. On the suburban lines 80 million passengers were conveyed a year compared with 17 million in 1933. Moreover, Johannesburg station dealt with 5,000 cans of milk a day. They were hoping farmers would transport milk in bulk.

Satisfactory Labour Conditions

The Minister said that today they had the most contented staff on the railways that could be found anywhere. There had been no difficulty in South Africa in regard to staff and labour conditions. He explained how, by forethought, the administration had been able to cope with the heavy extra expenditure which arose from war conditions without doing more than increase fares by 10 per cent. The increase in fares had been absorbed to the amount of £4,000,000 in increased wages and improved the conditions of workers.

Rates Equalisation Fund

Mr. Sturrock said that they had used certain fortuitous profits to build up the Rates Equalisation Fund to £10,000,000. During the last six months they had been losing money on the railways every month, and had lost a total of one and a half millions. To meet this they would normally have had to raise rates, but they had no intention of doing this. The loss would be met by drawing from the Rates Equalisation Fund.

Jobs for Ex-Soldiers

The administration had taken into its service more than 6,500 ex-volunteers who were not previously employed by the railways. They had been fitted into posts in keeping with their educational and other qualifications. War service was being regarded as railway service, and thus starting salaries placed the men in as favourable positions as they would have occupied if they had joined the railways instead of volunteering for the army.

Rolling Stock Built in South Africa

The railways were trying to have as much of their rolling stock built in South Africa as possible. The administration had given an order for 200 wagons at cost, plus 10 per cent., with a local firm. They had been delivered, and the firm was now busy on an order for 1,000 wagons. The wagons were very satisfactory indeed.

It was expected that over a period of three years 4,500 wagons could be built in the Union. The administration intended to go in for steel coaches, which were more suitable for high speeds and heavier loads, and also were safer.

Restoration of Expresses

It was proposed to have the "Blue Train" running again between Johannesburg and Cape Town in February next. It would leave Johannesburg on Mondays at about 10 a.m., and get to Cape Town the next afternoon at 2 or 3 o'clock. The return service would leave Cape Town on Fridays at about 10.30 a.m., and get to Johannesburg on Saturday afternoon about 4.30 or 5 o'clock.

It was hoped to restore all the express trains from June next, if engine power and rolling stock permitted. It was also proposed to bring Pretoria more into the picture, and to provide two special coaches on every train on the run between Pretoria and Cape Town.

UNITED STATES

A Successful Rio Grande C.T.C. Installation

A particularly successful application of centralised traffic control in the United States has been that of the Denver & Rio Grande Western Railroad between Grand Junction, Colorado, and Helper, Utah—a busy single-track main line, 176 miles long, through difficult mountain country. At the east end of the installation, 39 miles of line are controlled by a machine at Grand Junction; at the west end, 134 miles are controlled by a single machine at Green River, Utah. A comparison of the operation in two summer weeks, before and after the installation, respectively, shows that over the 176 miles the average time of westbound freight came down from 10 hr. 40 min. to 8 hr. 2 min., and of eastbound from 9 hr. 18 min. to 6 hr. 44 min. The total number of freight trains in both directions, rose from 141 to 158, at the same time that the combined average speed was increasing from 17.7 to 23.9 m.p.h.

Passenger train times were cut by 4 min. only westbound, from 5 hr. 5 min. to 5 hr. 1 min., but eastbound there was a reduction from 5 hr. 2 min. to 4 hr. 48 min.; the previous number of these trains, 59, rose to 73, while the average speed overall increased from 35·1 to 36·8 m.p.h. Short and local trips benefited by a reduction in average time from 3 hr. 2 min. to 2 hr. 27 min. westbound, though there was a rise from 2 hr. 12 min. to 2 hr. 54 min. eastbound; the total number of these trains increased from 69 to 79.

In all, therefore, 310 trains passed over the route in a week, after the installation had been made, as compared with 269 before; the average had thus risen to 44 daily, though as many as 60 trains have been handled in a single day. The net annual saving brought about by this installation is calculated at $317,844, and allowing for 5 per cent. interest on the capital cost ($1,391,880) the net annual return on the investment is 26 per cent.

Costly New Baltimore & Ohio Schemes

A number of engineering works of considerable importance is now in course of being carried out by the Baltimore & Ohio Railroad. Hitherto this company has shared with the Alton the freight yards at Chicago and East St. Louis, but in view of the forthcoming merger of the latter with the Gulf, Mobile & Ohio the B. & O. is building and equipping complete new yards and freight handling facilities at both cities, at an estimated cost of about $5,500,000. At Point Pleasant, West Virginia, the line from Parkersburg to Huntington and Kenova is carried across the Great Kanawha river by a lengthy bridge which is now in course of renewal at a cost of $2,000,000. The work will require 3,000 tons of steel, 15,000 cu. yd. of concrete, and 20,000 cu. ft. of piling.

The B. & O. is also sharing with the New York Central System in the construction of a new plant at Toledo, on Lake Erie, for the handling of coal and iron ore; for this purpose a company has been formed, called the Lake Front Dock and Railroad Terminal Railroad Company, which is spending $15,000,000 on the joint scheme. These facilities will be additional to those already in use by both companies independently for handling coal and ore at Toledo; and the B. & O. further plans to increase its facilities for handling coal at Lorain, another Lake Erie port and steelworking centre.

A Remarkable Safety Record

During September, 1945, the maintenance of track and structures on the Illinois Central System, one of the largest railways in the United States, was carried out without a single reportable injury to any member of the maintenance staff, though 2,000,000 man-hr. were worked. In the preceding nine months, during which 17,500,000 man-hr. were worked, there were 46 cases of personal injury in the department, and 23 motorcar accidents, giving a casualty rate of 2·61 per million man-hr. This rate compares with 4·23 for the same period in 1944, and 5.82 in 1943.

BRAZIL

Victoria-Minas Railway

The plan of improvements on this railway since its incorporation by the Companhia do Vale do Rio Doce includes the complete reconstruction of 230 km. of track and the realignment of another 250 km., involving the movement of some 7,000,000 cu. m. of earth. Other works include: renewal of 600 km. of rails; boring of three tunnels—one 1 km. long in rock, and two others 300 m. long; 6 viaducts; and 25 bridges, one of which crosses the Rio Doce at a point where it is 400 m. wide.

Already such works have had a notable effect on trade in the area served by the railway, as shown by receipts which increased from Cr. $20,000,000.00 in 1943 to Cr. $42,000,000.00 in 1944. These improvements have also promoted the establishment of new industries in the district representing Cr. $200,000,000.00 of capital.

New Locomotives

The National Department of Railways has now signed contracts for the supply of 50 new locomotives as follow:—

Baldwin Locomotive Works
- 10 4-8-4 locomotives at a cost of U.S. $110,000 each.
- 10 2-6-6-2 Mallet locomotives at a cost of U.S. $84,450 each.

American Locomotive Works
- 30 4-8-4 locomotives at a cost of U.S. $110,000 each.

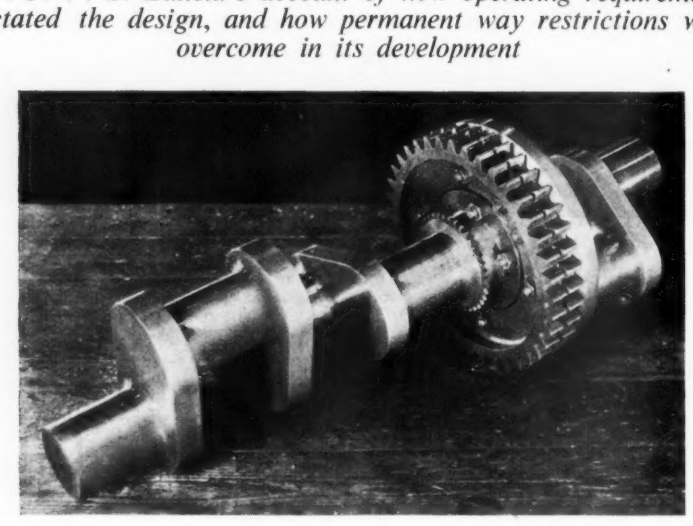
ECUADOR

Highway on Old Railway Roadbed

The Minister of Public Works of Ecuador has been authorised to sign a contract with the Central Railway of Ecuador for the construction of a road from Portoviejo to Santa Ana, in the Province of Manabi. The highway will be constructed on the roadbed of the recently-discontinued 2-ft. 5½-in. gauge railway line between Santa Ana and Manta, via Portoviejo, and will connect with the road now being constructed between Manta and Quevedo. The road will be 7 metres in width, with a 4-metre-wide macadam surface over a rock base. The cost is estimated at 2,200,000 sucres ($1 U.S. currency = 13·77 sucres). The work is to be finished by the end of 1946.

Some Notes on the "Merchant Navy" Class Locomotives, Southern Railway—4*

Mr. O. V. S. Bulleid's account of how operating requirements dictated the design, and how permanent way restrictions were overcome in its development



Three-throw crankshaft with driven sprocket for valve motion

THE main frames (Fig. 8) are of 1⅛-in. plate; the greatest depth is 3 ft. 11½ in. The large radii of the hornsheets above the boxes reduce the concentration of stress at the corners. No holes were drilled here, as it is the place where cracks usually develop; and wedges are not fitted. In addition to the usual hornstays, cross-stretchers—in front of the leading coupled wheels, between the leading and driving, and between the driving and trailing coupled wheels—have been arranged to reinforce the hornstays by being bolted to the hornsheets as well. The forward stay provides the support for the main brakeshaft. The stay between the leading and driving coupled wheels also supports the three-throw crankshaft† and the layshaft of the chain drive. The top cross-stay over the leading coupled axle carries the middle cylinder slidebar, three plunger guides, and the boiler front holding-down bracket, additional cross-braces carrying the links and the reversing weighbar shaft.

In view of the wide use of welding, it may be asked why cast-steel frame stretchers were used. The reason was that up to the time the orders were placed steel castings were readily obtainable, were thoroughly reliable, and could be expected to be cast to close limits. Moreover, welders were not available in sufficient numbers.

The castings as delivered were heavy and much work had to be done to lighten them. This drew attention to the advantages of fabrication by welding where suitable in the construction of the main frames. In the smaller editions of the "Merchant Navy" engines now under construction all stretchers are fabricated, pressings being incorporated in them where possible to reduce the amount of welding.

The most obvious departure from traditional practice is in the wheel centres used throughout these engines and tenders. The usual locomotive wheel consists of a cast-steel spoked centre on which is shrunk a rolled-steel tyre, and it has undergone little alteration since the earliest days.

When the rims of spoked wheels in the shops for retyring are examined, flexing between the spokes is revealed by the condition of the rim and the inside of the tyre, resulting in fretting corrosion of the tyre. The stresses set up in a rim when a tyre is shrunk on were investigated by polarised light on celluloid models in the laboratory at Ashford and showed great variation from spoke to spoke.

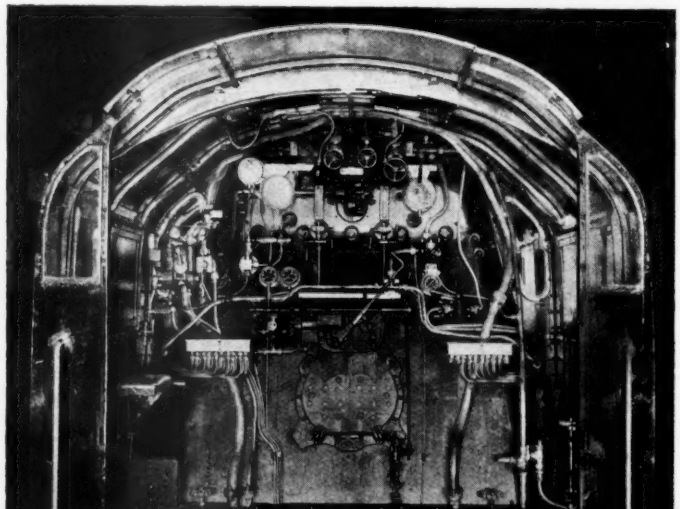
A locomotive wheel has not only to support the vertical load but has to have considerable lateral strength to support the heavy thrust of the flange against the rail when taking curves. Lightness, too, is important to keep down the kinetic energy and unsprung weight.

Eventually, with the collaboration of Thomas Firth & John Brown Limited, the wheel known as the B.F.B. type was evolved. Under polarised light the models showed that the stresses in the rim inside the tyre had been equalised. The construction of the centre involves a corrugated plate or web and suitable bridge pieces are incorporated to support the tyre opposite each corrugation. The lightening of the wheel hub is noteworthy. These driving wheels are very strong laterally while at the same time they are 10 per cent. lighter than the spoke type.

The drive through the tyre depends entirely on the grip of the tyre on the centre. Fig. 9 shows the section through the rim and tyre when the Gibson ring is used. The lip on the inside of the tyre is closed over the loose ring by rolling it down cold. It is incorrect to regard the ring as a fastening: it is a retaining ring and as such is a precaution intended to prevent the tyre leaving the centre should the tyre break.

Apart from the drawback of having to roll the rim over the loose ring, a decidedly brutal proceeding, the section of the tyre is not good from a rolling mill point of view owing to the large amount of metal on the inside bore of the tyre on cross corners to the projecting flange. The simpler arrangement shown in Fig. 10 was therefore adopted instead of the Gibson fastening and the area of contact between rim and tyre is increased.

The opportunity was also taken to introduce a high-tensile alloy steel tyre in order to obtain maximum wearing qualities. The steel used is a nickel-molybdenum-chromium steel having an ultimate



General view of cab

* Paper by Mr. O. V. S. Bulleid, Vice-President I.Mech.E. (Chief Mechanical Engineer, Southern Railway), presented before the Institution of Mechanical Engineers on December 14, 1945. Abridged. Part 1 appeared in our December 21 issue, Part 2 in our December 28, 1945, issues, and Part 3 in our January 4 issue

† The illustration of the three-throw crankshaft, which we reproduce above by courtesy of the Southern Railway, did not appear in the advance copies of the paper

tensile strength of 63-69 tons per sq. in. with an elongation of 8-10 per cent. on 2 in.

The tempering temperature is 600 deg. F. and the tyres have to be heated to 450 deg. F. to expand them sufficiently for the projecting lip on the inside of the tyre to pass over the driving wheel rims. In view of the importance of heating these special tyres no more than was essential, but as uniformly as possible so as not to

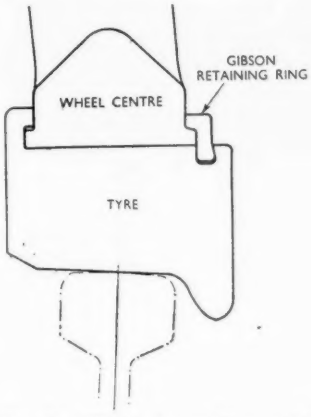


Fig. 9—Wheel rim and tyre with Gibson ring fastening

affect their temper, the method of heating hitherto in use in the workshops was reviewed, and it was found that the tyres were not, in fact, heated uniformly all round. The method of heating was therefore altered. Instead of holding the tyre stationary inside the heating shoes, it is placed on a face plate continuously revolved through gearing by an electric motor inside the stationary gas-fired heating shoes. The heating is timed to prevent the temperature being raised too quickly,

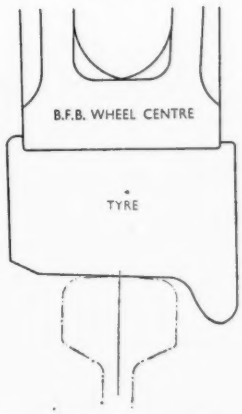


Fig. 10—New tyre and fastening

and uniform heating is now ensured. Special care is taken in measuring the centre diameter and tyre bore to prevent any excess over the shrinkage allowance.

These engines are fitted with the steam brake (vacuum on train). The wheels are fitted with clasp brakes, thereby obviating the thrust against the horns set up when single blocks are used. The brake block area in contact with the tyres is increased, which improves the dissipation of heat when braking, and the blocks require changing less frequently.

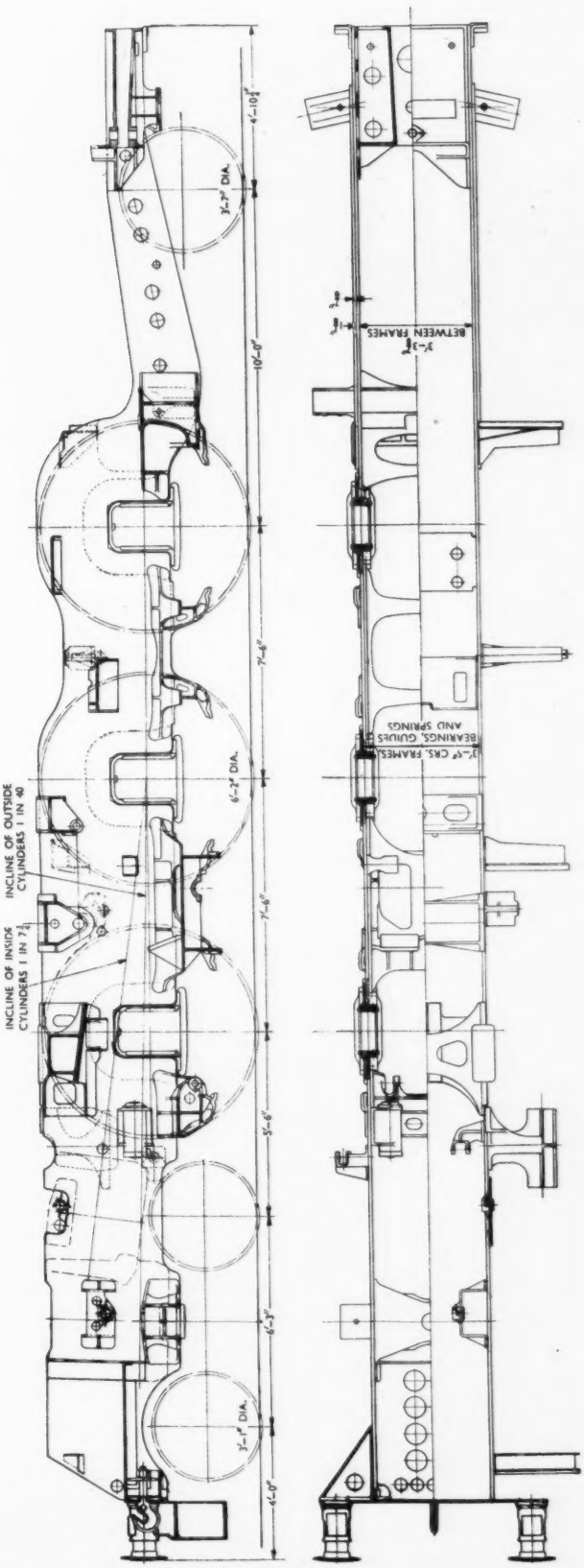


Fig. 8—Frame arrangement

On these engines the lagging casing is carried by the main frames, instead of by the boiler. A very light welded frame of cold-rolled sections has been used and the outer casing made of 20-gauge plate. The cab is constructed on the same lines. The usual side platforms have been suppressed.

This construction is at least 17 cwt. lighter than it would have been had the usual practice been followed. The exterior form of the casing was partly the result of the lightweight form of construction adopted. The channels, being cold-rolled, have to be rolled in circular curves. The form was also partly determined to ensure a clean exterior without projections, the advantages of which were obviously attractive.

Locomotives with long boiler barrels and short chimneys suffer from steam and smoke drifting down along the barrel and obstructing the look-out on the leeward side.

The cause is attributed to eddy currents, set up by the passage of the smokebox through the air, fanning out sideways, and setting up a pocket of low pressure along the side of the barrel behind the chimney centre line, into which the steam and smoke are drawn down. The more efficient the exhaust design, especially at early cut-offs and low steam-chest pressures, the worse the trouble, as there is less energy left in the exhaust to carry the steam and smoke away. Under certain weather conditions, drivers experienced difficulty in observing the signals with the front end as originally designed. This led to a series of experiments on models in the wind tunnel at Southampton University, followed by tests in service. As a result the front of the engine was re-arranged and the difficulty has been overcome. The author wishes to acknowledge Wing Commander T. R. Cave-Browne-Cave's help in finding this neat solution.

The tender tanks are fabricated, the tank plates being $\frac{3}{16}$ in. thick. Additional water-filling holes at the leading end of the tender enable the fireman to fill up without climbing to the top of the tender; they also enable the water level to be checked easily.

(Concluded)

L.M.S.R. New Composite Third Class Brake Vehicles

A further stage in the post-war new rolling stock programme

MODIFICATIONS and improvements, which are the result of many months of research in workshops and on the track, will be seen in 225 new corridor third brakes vehicles under construction at the L.M.S.R. works at Derby. The coaches were designed by the late Mr. C. E. Fairburn, Chief Mechanical & Electrical Engineer of the L.M.S.R., and form part of the company's immediate constructional programme of 800 new coaches, 200 of which have passed into service since VE-Day.

The new corridor third brakes are 57 ft. long and 9 ft. wide, and have four passenger compartments, one lavatory, and a luggage and guard's compartment. They are mounted on 4-wheeled bogies of all-welded standard L.M.S.R. construction, 9 ft. wheelbase with rolled-steel disc wheels having axles with 9 ft. × $4\frac{1}{2}$ in. dia. journals. Two pairs of steel helical springs are used for the bolster with laminated side bearing springs 5 ft. centres of eyes fitted with rubber auxiliary springs.

The underframe follows the standard L.M.S.R. design for 57 ft. long carriage stock and is fitted with shock-absorbing buffers, articulated drawgear, and screw couplings. The frame is built from standard rolled-steel sections, electrically-welded throughout, with a completely flush upper surface to receive the corrugated steel floor sheets which form the base for the floor. These sheets, No. 16 s.w.g. galvanised steel, are welded to the underframe members, and have cork slabs inlaid for the passenger compartments and corridor, with blown bitumen for the brake and luggage compartment.

The body structure consists of teak pillars bolted to pressed-steel sockets welded to the underframe solebar and the steel angle cant rails. The exterior of the bodyside has a flush finish, the panels, No. 16 s.w.g. steel, are carbon arc-welded into one complete unit extending the full length of the bodyside between the doors before being secured to the body framing. The body ends are built up with rolled-steel angle pillars and arch rails welded to the underframe members and cant rails, and covered on the outside by No. 16 s.w.g. steel panels.

Steel angle carlines welded to the cant rails carry the outer roof panels of No. 16 s.w.g. galvanised-steel sheets, the joints of which are arranged to coincide with the carlines. The method of connection and securing is by metallic arc welding.

The tare weight of the vehicle is 30 tons.

Seating and Decoration

Accommodation is provided by the four compartments for 24 passengers, six per compartment, three on each side. Hinged arm rests are fitted and these can be folded back flush into the seat backs, thus giving four seats each side or a total of 32 passengers a car when necessary.

Special attention has been paid to the contour and springing of the seat and seat back to obtain maximum comfort for the passengers. The seats are double sprung, with well-upholstered seat back and head rest. The seat, back, head rest, and side squabs are finished with moquettes to match the interior woodwork finish.

A variety of finishing timbers is being used for various portions of this order, namely, betula, makore, silky oak and bubingo, with framing timbers to match.

The interior is of a flush design, mouldings, and projections being reduced to a minimum. There is one mirror above each seat back and the metal fittings are finished in oxidised venetian bronze. The compartments and corridor are fitted with large observation windows having a low sill height, each of which is equipped with a double sliding extractor ventilator light.

Communication between the compartments and corridor is obtained by double sliding doors to each compartment. These doors have large windows which provide uninterrupted vision from the compartment through the corridor bodyside window, which is directly opposite the doors; the corridor partition consists of laminated plywood panels.

The compartment slidings doors are fitted with cable controlled blinds which enable the latter to be adjusted to any height. Experiments recently have been made with regard to the exclusion of draughts, as a result of which a prevention device has been fitted to the compartment sliding doors. Provision is made in each compartment for the use of a table; the tables are stored in the brake compartment when not in use. The cork floor in the compartments and corridor is covered with felt and brown linoleum.

The carriages are steam-heated; each compartment has two 3-ft. gilled heaters which are thermostatically controlled and are also fitted with a cut-off valve which can be operated by the passenger. Recessed heaters are installed in the corridor.

Several new features have been embodied to ensure a good supply of hot water together with easier maintenance of the fittings in the toilet.

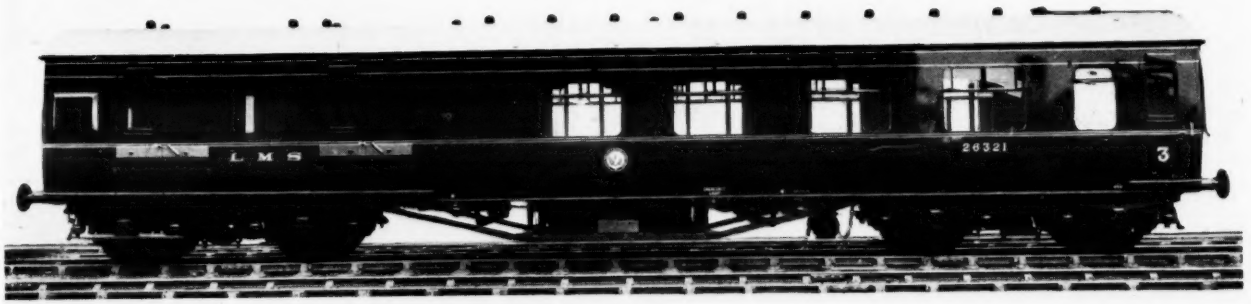
The luggage and brake compartment contains upholstered seats for the guard with lockers, hand-brake wheel, vacuum-brake application valve, emergency tool equipment, and vertical steam heater adjacent to the guard's seat. Two pairs of double doors are fitted on each bodyside of the brake compartment.

Electric Lighting

Electric lighting is provided by the company's standard "Wolverton" system. This is a single-battery equipment, the regulator of which combines all the necessary switchgear as a unit. Lighting is by means of 15-watt lamps, of which there are five in each compartment, one in a reflector fitting on the ceiling and four mounted on moulded plastic brackets over the seat backs. The brackets are fitted with opal-glass shades and carry a switch-lamp holder, giving individual control. Two brackets are fixed over the mirror in the toilet. All circuits are protected by non-interchangeable fuses of the cartridge type and each bracket carries an individual fuse combined with a plug. The coach is furnished with standard R.C.H. through-control, and a main controller in the brake compartment provides control of the whole train to which the vehicle is connected or, alternatively, of the individual coach only.

G.N.R.(I.) STAFF GIFT TO BELFAST ROYAL VICTORIA HOSPITAL.—Appreciation of the services being rendered the community by the Belfast Royal Victoria Hospital was evidenced on December 29 when a delegation representing the Great Northern Railway (Ireland) employees attended at the boardroom of the hospital and presented two cheques—one for £500, the other for £10. The cheques were handed over by Mr. J. Wallace, Secretary, Great Northern Railway Hospital Committee, and were received by Mr. Herbert Quin, M.P., Chairman of the Board of Management of the hospital.

L.M.S.R. New Composite Third Class Brake Vehicles



Side elevation of L.M.S.R. new composite third class brake vehicle. Note the unobstructed vision through corridor windows

Interior of third-class 6-seat compartment, convertible to 8 seats with armrests raised

View along corridor showing the deep windows. Note the high degree of actinic light

Interior of guard's compartment and brake van equipment. Observe vertical steam heater next guard's seat

The Elox Disintegrator

Removing broken drills and taps electrically

The difficulty of removing taps and drills inadvertently broken in a partly-machined casting can be overcome by the use of an electric disintegrator. In the Elox machine illustrated, a tubular copper electrode, somewhat smaller than the broken tool, is centred over it in much the same manner as for an ordinary drilling operation.

Any drilling machine serves for the purpose, but the motor is not used as the disintegrator head does not revolve. When power has been switched on, the electrode is brought into contact with the end of the broken tool and disintegration begins. The electrode, which is cooled by a constant stream of water through its bore, cuts a core down through the centre of the obstruction. After the core has been removed the remaining portions of the broken tool can be picked away from the wall of the hole without damage to the casting or other work. The work remains cool throughout the process and there is no danger of heat distortion or electrolytic action. The machine is made in two types, a cabinet model weighing 150 lb., mounted on casters, or a portable bench unit weighing 64 lb. The cabinet machine is self-contained and comprises a transformer, fluid tank, pump, and disintegrator head. On the sloping top of the cabinet is an instrument panel with a voltage regulator, switch, and indicator light. The fluid pump is tested at a pressure of 20 lb. and has a capacity of 90 gal. per hr. The tank capacity is 10 gal. The pump motor is of 1/25 h.p. operating on alternating current at 220/230 volts, 50 cycles, single phase. An air-cooled transformer is fitted, and is rated at 220/230 volts, 50 cycles, with a continuous output of 2-7 volts.

The cabinet model

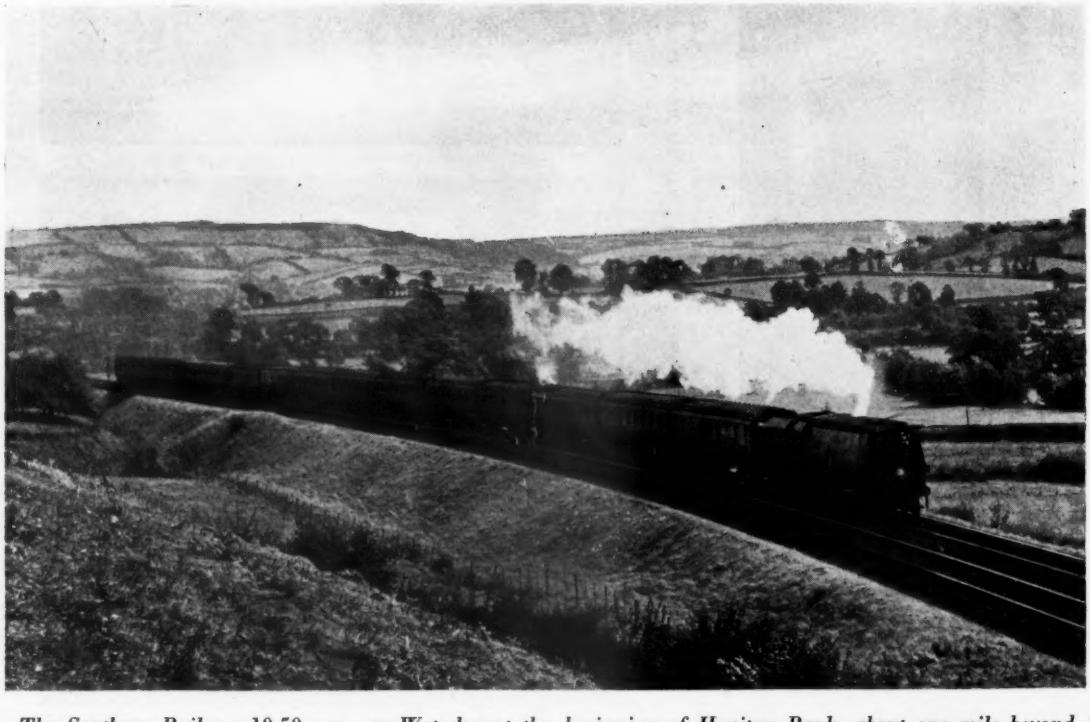
The bench unit

The bench machine has a tank capacity of 3 gal., with a fluid pump driven by a 1/5 h.p. motor operating at 220/230 volts, 50 cycles, single phase alternating current. The transformer is similar to that used in the cabinet machine.

Each type of machine is provided with 24 electrodes, two each of sizes ranging from 0.48 in. to 5/16 in. diameter, with oval section electrodes, also a set of magnetic picks, extension electrode holder, and electrode remover.

In addition to removing broken tools, these machines can be used for "drilling" shaped holes in soft or hard steel with, it is claimed, a saving in time and operating costs, compared with other methods. The process has an application in die making for the plastics industry, and for other purposes.

The "Atlantic Coast Express" on Honiton Bank



The Southern Railway 10.50 a.m. ex-Waterloo at the beginning of Honiton Bank, about one mile beyond Seaton Junction. The view was taken in October last. The train of 15 coaches is headed by "Merchant Navy" class locomotive 21C4 "Cunard White Star"

RAILWAY NEWS SECTION

PERSONAL

Lord Balfour of Burleigh has relinquished the Chairmanship of the National Bank of New Zealand Limited, on account of increased business responsibilities. He retains his seat on the board. Mr. Sydney Parkes has been elected Chairman of the bank. Lord Balfour of Burleigh is a Director of the London & North Eastern Railway Company.

Mr. J. F. C. Reynolds, General Manager, South Indian Railway, has been elected President of the Indian Railway Conference Association for 1946-47.

Mr. R. A. Davis, Deputy Director-General, Royal Engineer Equipment, Ministry of Supply, has been released from his post.

L.P.T.B. CHIEF PUBLIC RELATIONS & PUBLICITY OFFICER

Mr. J. H. Brebner, O.B.E., has been appointed Chief Public Relations & Publicity Officer, London Passenger Transport Board. Mr. Brebner has retired from his position as Director of the News Division, Ministry of Information, on taking up his appointment with the L.P.T.B.

Sir John Anderson has been elected Chairman of the Port of London Authority. He succeeds Mr. Thomas Wiles, who assumed the Chairmanship in 1941 for the duration of the war, and has now resigned. Sir Douglas Ritchie, on retiring from the office of General Manager, has been elected Vice-Chairman of the Authority, in succession to Mr. L. H. Bolton, who has resigned on account of post-war pressure of shipping and other business commitments.

Sir William Elderton, Principal Statistical Adviser to the Ministry of War Transport, has retired.

HAY'S WHARF CARTAGE CO. LTD.

Hay's Wharf Cartage Co. Ltd. announces the following appointments:—

Assistant General Manager: Mr. Harold Elliott.

Personal Assistant to the General Manager: Mr. Shirley H. James.

Chief Staff Manager: Mr. E. J. Church.

Horse Manager & Veterinary Surgeon: Mr. R. V. Crichton.

Chief Removal & Travel Manager, Pickfords Limited: Mr. T. H. Stacey.

Assistant Chief Removal & Travel Manager, Pickfords Limited: Mr. G. F. MacLean.

Manager, Car Sales Department of Garlick, Burrell & Edwards Limited, Liverpool: Mr. J. B. Osler, *vice* Mr. W. J. Cornes, who has gone into voluntary retirement. Mr. Osler continues as Managing Director of Express Motor & Body Works Limited.

Chief Parcels Manager, Carter Paterson & Pickfords Joint Parcels Services: Mr. N. D. Fawkner.

Mr. John C. Patteson, who, as recorded in our January 4 issue, has been appointed European General Manager of the Canadian Pacific Railway, has been European Manager for the past nine years. His new appointment revives a position last held by the late Sir George McLaren Brown. Mr. Patteson has not long been back in England from conference at Windsor Station headquarters, Montreal, having gone to Canada with Mr. D. C. Coleman, Chairman &

Mr. J. C. Patteson

Appointed European General Manager, Canadian Pacific Railway

President of the Canadian Pacific Railway Company, last September after the latter's visit to Great Britain. Mr. Patteson was educated at Model School, Toronto, Bishop Ridley College, St. Catharines, and the Royal Military College, Kingston, and served overseas with the Canadian Field Artillery in the war of 1914-18. Mr. Patteson joined the Canadian Pacific in 1923 in New York as Assistant General Agent, Steamship Services. He later served in Philadelphia, Chicago and Toronto, in each case as General Agent. In February, 1936, he was transferred to London as Assistant to Sir George McLaren Brown, and in the autumn of the same year was made European Manager. Mr. Patteson was lent in 1940 to the Ministry of Supply for four years, during which he was Director-General of Supply Services, and latterly the representative of the Ministry in Canada.

Mr. D. J. Thornton, District Electrical Assistant, Norton Folgate (Liverpool Street), L.N.E.R., retired on December 29 last.

Sir Harold Morris, K.C., President of the Industrial Court, has resigned the appointment after 20 years' service, and the Minister of Labour & National Service has appointed Sir John Forster, Chairman of the National Arbitration Tribunal, to succeed him. Sir John Forster will no longer continue regularly to act as Chairman of the National Arbitration Tribunal, but will sit when cases under Part 3 of the Conditions of Employment & National Arbitration Order are before it.

Sir Norman V. Kipping has resigned from the Board of Trade to take up his appointment as Director-General of the Federation of British Industries. Mr. G. Calder succeeds him in charge of the regional organisation of the Board of Trade. Mr. Calder will take charge also of the division responsible for the administration of the Distribution of Industry Act, 1945, and cognate matters, at present dealt with by Sir Philip Warter, who will continue to assist the Board in an advisory and executive capacity, especially in connection with trading estate companies and the disposal of Government factories.

We regret to record the death in India, of cerebral hæmorrhage, of Mr. Vere Norman Rowsell, O.B.E., M.C., V.D., Traffic Superintendent, Ajmer, Bombay, Baroda & Central India Railway, aged 58.

Mr. A. L. McColl has retired from the position of Chairman of the Vacuum Oil Co. Ltd., but continues to be a Director. He is succeeded as Chairman by Mr. A. L. Nickerson. Mr. McColl is Chairman of the Superheater Co. Ltd.

We regret to record the death on January 4, at the age of 64, of Mr. John Hampden Parker, M.I.E.E., who retired recently from the position of Chief Electrical Engineer, L.P.T.B. A portrait and biography of Mr. Parker appeared in our October 19, 1945, issue.

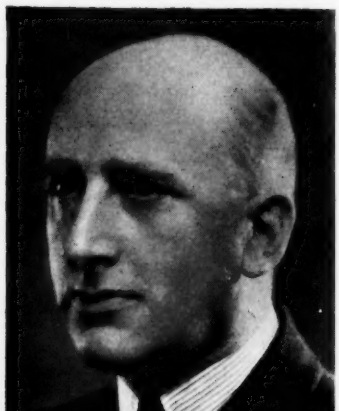
Mr. P. C. Dewhurst, M.Inst.C.E., M.I.Mech.E., who recently retired from the position of Chief Mechanical Engineer, Central Uruguay Railway, was trained on the Midland Railway (of England). Later he went to Chile, and was engaged on various engineering undertakings, including the Chilean Transandine Railway at the time of its completion and connecting up with Argentina. After returning to England for a short time he went to the Jamaica Government Railway in 1914, where he was successively Works Manager, Assistant Locomotive Superintendent, and, for a number of years, Chief Mechanical Engineer, during which period considerable modernisation of locomotives and rolling stock took place, including the introduction of his 4-8-0 flexible-wheelbase locomotives, of which facsimiles were built for that line as recently as last year; the rebuilding and extension of the principal works at Kingston also were carried out. In 1923 he left to become Chief Mechanical Engineer to the Government

Mr. P. C. Dewhurst

Chief Mechanical Engineer, Central Uruguay Railway, 1930-45

The late Mr. Robert Gardiner

Superintendent (Scottish Area), L.N.E.R., 1935-45



Mr. F. A. A. Menzler

Appointed Chief Development & Research Officer, L.P.T.B.

of Colombia, in which capacity he had charge of the mechanical departments of the various railways operated and under construction by the Government, as well as other Government activities related to mechanical engineering; the railway system of the country was practically doubled during that period, and Mr. Dewhurst was responsible for a complete range of new standard locomotives on the different Government—and some non-Government—lines, including flexible-wheelbase 4-8-0 and three-cylinder 4-6-2 and 4-8-2 types, heavy tank engines, 2-6-2 tender and tank engines, and various classes of light tank engines for construction and motor trains. The railways also were practically re-equipped with modern double-bogie freight and passenger stock. After returning to England in 1929, Mr. Dewhurst was commissioned to inspect the mechanical and allied departments of the railways of Southern Greece. In 1930 he was appointed Chief Mechanical Engineer, Central Uruguay Railway, where the modernisation of a large part of the locomotive stock was carried out, including 2-8-0 and other reconstructions. Two recent new designs for the C.U.R. are for 4-4-2 convertible engines for fast light trains and 2-10-0 heavy-freight locomotives; an illustrated description of the design of the latter was published in our issue of March 9 last.

Mr. Robert Gardiner, Superintendent (Scottish Area), L.N.E.R., whose death, late on December 24, after having carried through his normal duties earlier that day, we recorded last week, was born in Edinburgh, and joined the old North British Railway in 1897. He was employed as a booking clerk at various places until 1901, when he was transferred to the Commercial Department; two years later he entered the office of the Superintendent of the Line. From 1912 to 1915 Mr. Gardiner was engaged in connection with special traffic operating questions, including the layout and ramifications of the extensive system of N.B.R. train controls. In 1923 he was appointed Assistant District Superintendent, Sunderland (North Eastern Area), and in May, 1927, was transferred to the Newcastle District in a similar capacity. In November, 1927, he was appointed Assistant Superintendent, Eastern Section (Southern Area), from which position he was promoted early in 1935 to Superintendent (Scottish Area) at Edinburgh. Recently it had been announced that he had been appointed a Justice of the Peace of the County of the City of Edinburgh. The funeral took place on December 28, at Liberton Cemetery, Edinburgh, preceded by a service conducted by the Reverend Donald Ross, M.A., in Mayfield North Church. Among those present, in addition to family mourners, were :—

L.N.E.R.

Sir Alexander Erskine-Hill and Sir Samuel Strang Steel (also representing Lt.-Col. the Hon. Arthur C. Murray, Chairman of the Scottish Area Board); Messrs. R. J. M. Inglis, Divisional General Manager, Scottish Area; T. F. Cameron, Acting Divisional General Manager, Scottish Area (also representing Sir Ronald W. Matthews, Chairman, Sir Murrough J. Wilson, Deputy-Chairman, and Sir Charles Newton, Chief General Manager); C. S. McLeod, Assistant Divisional General Manager, Scottish Area; A. E. H. Brown, Assistant Divisional General Manager, Southern Area (also representing Mr. V. M. Barrington-Ward, Divisional General Manager, Southern Area); G. Mills, retired Divisional General Manager, Southern Area; H. Arnott, Assistant Superintendent, North Eastern Area (also representing Mr. C. M. Jenkin Jones, Divisional General Manager, North Eastern Area, and Mr. E. M. Rutter, Superintendent, North Eastern Area); H. G. Sayers, Assistant Superintendent, Scottish Area (also representing Mr. P. Syder, retired London City Manager); E. W. Arkle, Goods Manager, Scottish Area; L. E. Marr, Passenger Manager, Scottish Area (also representing Mr. C. G. G. Dandridge and Mr. S. T. Burgoyne, Passenger Managers, Southern and North Eastern Areas); J. W. Barr, Assistant Passenger Manager, Scottish Area; C. J. Y. Dallmeyer, Solicitor, Scotland (also representing Mr. Miles Beevor, Chief Legal Adviser); T. Anderson, Assistant Solicitor, Scotland; T. B. Maitland, retired Solicitor, Scotland; E. D. Trask, Locomotive Running Superintendent, Scottish Area (also representing Mr. Edward Thompson, Chief Mechanical Engineer, Mr. G. A. Musgrave, Mr. L. P. Parker and Mr. C. M. Stedman, Locomotive Running Superintendents, Southern and North Eastern Areas); W. Y. Sandeman, Engineer, Edinburgh (also representing Mr. J. C. L. Train, Chief Engineer); R. M. Scott, Factor, Scottish Area (also representing Mr. W. S. Barnes, Rating Surveyor); C. G. Jarrett, Hotels Superintendent, Scottish Area; Captain H. J. Perry, Marine Superintendent, Scottish Area; Messrs. H. S. Cole, Chief of Police, North Eastern & Scottish Areas; J. R. Shewan, Electrical Engineer, Scottish Area (also representing Mr. H. W. H. Richards, Chief Electrical Engineer); G. Stewart, Assistant to Superintendent, Southern Area (also representing Mr. E. W. Rostern, Superintendent, Southern Area); J. I. G. MacGregor, retired Assistant Engineer, Edinburgh; G. S. Begg, retired Passenger Manager, Edinburgh; L. Sproat, District Superintendent, Newcastle; C. J. H. Selfe, District Traffic Superintendent, Aberdeen; J. Lorimer, District Goods & Passenger Manager Dundee; F. C. Margetts, District Superintendent, Burntisland; C. J. Lamb, District Locomotive Superintendent, Burntisland; H. F. Smart, Assistant District Superintendent, Glasgow; R. P. Critchley, District Locomotive Superintendent, Glasgow; H. B. Angus, District Goods & Passenger Manager, Edinburgh; G. M. Johnston, District Superintendent, Edinburgh; B. P. Blackburn, District Locomotive Superintendent, Edinburgh; J. W. Dedman, Assistant District Superintendent, Edinburgh; W. N. Kerr, Assistant District Goods & Passenger Manager, Edinburgh; W. Armstrong, Chief Clerk, District Superintendent's Office, Edinburgh; G. Inglis, District Engineer, Carlisle; W. Charlton, Police Superintendent, Edinburgh; W. Riddle, Stores Department, Cowlairs (also representing Mr. F. H. Colebrook, Purchasing Agent, and Mr. H. A. Butler, Traffic Stores Superintendent); J. B. Dunlop, Advertising Manager's and Press Relations Officer's Representative, Scottish Area; G. Crabtree, Assistant to Superintendent & Locomotive Running Superintendent, Edinburgh; A. Hill, retired District Superintendent; J. McNeil, retired District Superintendent; J. Singer, retired Traffic Superintendent; J. Wilkie, retired District Goods & Passenger Manager; R. Douglas, retired District Goods & Passenger Manager; W. Lyle, retired District Superintendent; J. Shaw, retired District Commercial Superintendent.

L.M.S.R.

Major M. S. Speir, Chief Officer for Scotland; Messrs. J. N. Phillipps, Operating Manager, Glasgow; R. D. Kerr, District Goods & Passenger Manager, Edinburgh (also representing Mr. W. Yeaman, Commercial Manager, Glasgow).

Scottish Command

Lt.-Colonel Sir J. R. Graham, V.C. (representing Scottish Command).

Railway Clerks' Association

Messrs. G. Mathers, M.P.; T. Duncan; D. Robertson.

Representing N.U.R.
Councillor J. Campbell; Mr. F. Donachy; Councillor Rhind; Mr. W. C. Meikle; Mr. A. Glover; Councillor J. Smith.

Representing L.N.E.R. Sectional Council
Messrs. W. Fulton; J. A. Matheson; A. F.

Representing A.S.L.E.F.
Messrs. A. A. Nisbett; A. Patterson.

Mr. F. A. A. Menzler, B.Sc., F.I.A., Chief Financial Officer, London Passenger Transport Board, who, as recorded in our January 4 issue, has been appointed Chief Development & Research Officer, in charge of the newly-created Development & Research Department, was educated at St. Marylebone Grammar School and Strand School, King's College. He entered the Civil Service in 1907, in the Finance Department of the Ecclesiastical Commission; while in that office, he graduated in science at London University. During the war of 1914-18 he served in France, first in the ranks of the R.G.A., and subsequently received a commission in the R.E., in which he commanded a Sound Ranging Section. He was awarded the Croix de Guerre Belge. After demobilisation he transferred, in 1919, to the Government Actuary's Department, as Actuary. While there he was Secretary of the Permanent Consultative Committee on Official Statistics, and was a member of the Statistical Committee of the Medical Research Council. He was also a member of the National Whitley Council for the Civil Service, on which he represented the Institution of Professional Civil Servants, of which he was Chairman. Mr. Menzler resigned from the Civil Service in 1929 on appointment to the Chairman's Office of the Underground companies. He was appointed an Officer in 1930, with the title of Actuary, which he retained on taking charge of the Statistical Office when the L.P.T.B. was constituted in 1933. He was appointed Chief Financial Officer of the Board in 1939, with the oversight of the Statistical, Audit and Treasurer's Offices. Mr. Menzler is a Fellow of the Institute of Actuaries, and has served as Chairman of the Board of Examiners, Joint Honorary Secretary and Vice-President of the Institute, of which he is at present a member of the Council. He has served also as an L.C.C. representative on the committee of University College, London, and is a member of the Statistical Committee appointed to advise the present Royal Commission on Population.

Mr. Harold F. Williams has been appointed Secretary of the Local Government Boundary Commission, the office of which is at Devonshire House, Piccadilly, W.1.

L.M.S.R. Staff Changes

Mr. J. B. Faulkner, Divisional Land & Estate Agent, Glasgow, to be Assistant Estate Manager, Watford H.Q., in place of Mr. A. P. J. Ball, appointed Estate Manager & Rating Agent.

Mr. E. C. Dewick, District Estate Agent, Liverpool, succeeding Mr. J. B. Faulkner as Divisional Land & Estate Agent, Glasgow.

Mr. J. B. Chadwick, General Assistant, Estate Manager's Office, Watford H.Q., to be District Estate Agent, Liverpool.

Mr. H. L. Robson to be Head of Land Agency & General Section, Estate Manager's Office, Watford H.Q.

Mr. G. N. Walker, District Estate Agent, Preston, to be District Estate Agent, Manchester, in place of Mr. J. H. Openshaw, retired.

Mr. J. Lever, Chief Surveyor, District Estate Manager's Office, Liverpool, succeeding Mr. G. N. Walker as District Estate Agent, Preston.

Mr. W. F. Owens, Chief Surveyor, District Estate Manager's Office, Manchester, to be District Estate Agent, Crewe, in place of Mr. L. A. A. Taylor, promoted.

Mr. E. T. Forster, Chief Surveyor of Rating, Rating Manager's Office, Watford H.Q., to be Assistant for Rating, Office of Estate Manager & Rating Agent, Watford H.Q.

We regret to record the death on December 17, 1945, at the age of 64, of Mr. A. Vernon Smith, Chief Clerk in the Administration of the Leopoldina Railway, with which company he had served since 1911. He was an accomplished linguist.

Sir Ronald Matthews

We regret that in the report of the luncheon to commemorate the centenary of the opening of the Sheffield, Ashton-under-Lyne & Manchester Railway, in our January 4 issue, the name of Sir Ronald W. Matthews, Chairman of the London & North Eastern Railway Company, was printed as "Mathews."

We regret to record the death on January 3 in his 59th year of Mr. Roland Hunter Briggs, M.B.E., who was Chief Technical Censor, Ministry of Information, for practically the whole period of the war, and latterly held the title of Assistant Director, Technical Press Censorship. Before the war he was Editor of *The Overseas Engineer.*

Mr. Warren J. Bruce has retired from the position of Docks Manager of the Manchester Ship Canal Company. Mr. Bruce's connection with the company began in 1894, the year the ship canal was opened for through traffic to Manchester. Mr. H. Oakley Smith, Assistant Docks Manager, has been appointed Docks Manager.

We regret to record the death on December 7, 1945, at the age of 72, of Monsieur Gaston Leverve, Secretary-General of the International Railway Union (l'Union Internationale des Chemins de Fer—U.I.C.) He had been in failing health since the spring of 1940. Monsieur Leverve entered the Ecole Polytechnique in 1892. Afterwards he joined the Ministère des Ponts at Chaussées. He joined the Paris-Orléans Railway in 1904, and was appointed Chief Engineer in 1922. He served in a military capacity in Siberia in the 1914-18 war. Monsieur Clemenceau appointed him, in 1920, Technical Councillor to the French Foreign Office, and he proceeded to Vienna, where he remained until 1923 to re-organise international transport in central Europe. Monsieur Leverve was Secretary-General of the U.I.C. since its inception in 1922 until his death. As from 1924 he carried out many important duties for the French Government. When the Danube-Save-Adria Railway Company was created, he was appointed Director by the French International Shareholders' Association, and finally Chairman. In 1929 he was nominated by the Allied Governments as Technical Financial Adviser to the Roumanian Government, and in 1936, his mission terminated, he continued, at the request of the Roumanian Government, his duties as Technical Councillor to the Ministry of Communications at Bucharest. He was a Director of the Compagnie Internationale des Wagons-Lits, Brazil Railway Company, and other companies. He was Commander of the Legion of Honour and held many foreign orders and decorations.

The New Year Honours List

The following is a selection, further to that published in our last week's issue, of the honours announced in the New Year list :—

C.B.E. (Civil Division)

Mr. John Brown, General Secretary, Iron & Steel Trades Confederation.

The Hon. John Jocelyn Denison-Pender, Joint Managing Director, Cable & Wireless Limited.

Mr. Gerald William Lacey, A.R.I.C., lately Controller of Light Metals, Ministry of Aircraft Production. Director, British Aluminium Co. Ltd.

Mr. Alexander Collie Low, Secretary, Engineering & Allied Employers' National Federation.

Mr. Cecil George Herbert Richardson, Joint Managing Director, Ransome & Marles Bearing Co. Ltd.

O.B.E. (Civil Division)

Mr. Vaman Prabhakar Bhandarkar, Deputy Chief Transportation Manager, Bengal Assam Railway, Calcutta.

Mr. Henry George Carpenter, Regional Controller of Railway Priorities, Madras.

Mr. William Hood, Chief Engineer, Great Indian Peninsula Railway, Bombay.

Mr. Frank Edward Hough, Locomotive & Carriage Superintendent, Nizam's State Railway, and Chairman, Technical Training Committee, Hyderabad (Deccan).

Mr. Reginald George Hughff, Deputy Chief Mechanical Engineer, East Indian Railway, Jamalpur.

Mr. Thomas Duncan Macintosh, Locomotive & Carriage Superintendent, Bombay, Baroda & Central India Railway, Ajmer.

Mr. Thomas Hooper Morris, Controller of Stores, Bengal-Nagpur Railway.

Mr. William Robert Oaten, Deputy Chief Mechanical Engineer (Works), Golden Rock Workshops, South Indian Railway.

Mr. Thomas Stephenson, Chief Commercial Manager, Madras & Southern Mahratta Railway, Madras.

Mr. William Urquhart, Senior District Engineer, Kenya & Uganda Railways.

O.B.E. (Military Division)

Lt.-Colonel (temporary) Michael Noel Varvill, M.C., R.E. Formerly Chief Engineer, Rhodesia Railways.

M.B.E. (Civil Division)

Mr. Eric Graham Cullen, District Engineer, Madras & Southern Mahratta Railway on Special Duty (Major, D. of I. Corps).

Mr. Walter Anthony Fosberry, District Mechanical Engineer, Bengal Assam Railway, Lumding.

Mr. Barkatullah Khan, Goods Superintendent, Bombay, Baroda & Central India Railway, Bombay.

Mr. Arthur Heath, Senior Assistant Commercial Manager, North Western Railway, Lahore.

Mr. Robert Hill, Stationmaster, Kenya & Uganda Railways.

Major Alexander Lamb, Planning Officer (Wireless), Railway Board, New Delhi.

Mr. Cecil Harold Ottley-Vears, Assistant Transportation Superintendent, Great Indian Peninsula Railway, Bombay.

Mr. Chananand Pande, Executive Engineer, East Indian Railway, Bareilly.

Mr. Henry John Shailes, Deputy Regional Controller of Railway Priorities, Calcutta (West).

M.B.E. (Military Division)

Major (acting) Adin Hull, R.E.

Ministry of War Transport Accident Report

Between Trevor and Llangollen, G.W.R.; September 7, 1945

Lt.-Colonel G. R. S. Wilson, assisted by Mr. C. T. Gardner, Deputy Director of Canals, Ministry of War Transport, inquired into the accident which occurred at about 4.51 a.m. on September 7, 1945, near Sun Bank Halt, between Trevor and Llangollen, G.W.R., when the 3.35 a.m. mail and parcels train, Chester to Barmouth, travelling at about 35 m.p.h. was wrecked and caught fire; the driver was killed instantly. At about 3.30 a.m. a portion of the bank of the Shropshire Union Canal, belonging to the L.M.S.R., located on a steep hillside about 37 ft. above the railway, gave way and a severe breach was caused in the 40-ft. high double line railway embankment, leaving the rails suspended. Unfortunately the block and telephone wires were not severed. The fireman was thrown clear and half buried in earth but, although his wrist was broken, walked forward 1½ m. to Llangollen to report the accident. The guard's van was not seriously damaged and he climbed out and walked back to Trevor signal box.

It was a fine but very dark night. The summer had been dry locally, but there was an exceptionally heavy thunderstorm on August 5, with practically continuous rainfall for 24 hr.; 2 in. of rain was recorded at Shrewsbury, 25 miles away. The failure of the canal bank appears to have been brought about by general instability of formation, due to a variety of causes. The fire service was summoned and eventually four pumps were at work, but the fire was not extinguished finally until 9.10 a.m. Clearance of the wreckage presented exceptional difficulty and was not completed until 4 p.m. on September 12, until which time little more than preparatory work was possible for restoring the line. In addition to the breakdown crane winch lorries were obtained from the Army authorities and a local timber merchant. A temporary up line bridge was completed by September 17 and single-line working instituted three days later, while tipping work continued. Double-line working was restored on September 22; the superstructure of the temporary bridge was recovered, leaving the piles in the bank. Work on restoring the canal bank proceeded concurrently and great credit is accorded by the report to all concerned in this complicated emergency task.

General Details

The accompanying drawings, taken from the report, show the relative positions of the railway and canal and other details involved in the accident. The canal, known as the Ellesmere Canal, was authorised in 1793 and leased in perpetuity to the London & North Western Railway in 1847; it was vested in the L.M.S.R. in due course. By an Act of 1944 it was closed to navigation and now serves as a feeder to the main Wolverhampton to Ellesmere Port navigation canal, which it joins at Hurleston. It is approximately 20 ft. wide and 2 ft. 9 in. deep. A daily flow of 11½ million gal. is needed to maintain agreed water supplies to industrial undertakings, notably Monsanto Chemicals Limited, near Ruabon, and certain farms. The L.M.S.R. is empowered by an Act to abstract up to 12½ million gal. a day from the River Dee at Llantisilio.

Reports on the geological characteristics of the locality and relevant details were prepared by Mr. A. Reid, Mining Engineer, L.M.S.R., and Mr. F. B. Clark, Mining Consultant, G.W.R. These showed the general formation of the hillside to be of glacial moraine type overlying the Silurian rock. Further up the hill, about 270 yd. from the roadway, there is a fault, above which the carboniferous limestone rock comes to the surface. The canal and roadway apparently were constructed on natural terraces in the boulder clay moraine formation; the natural hillside formed the lower portion of the 1 in 1.5 slope between railway and canal, with tipped earth above it to form the towpath and outer canal bank. The slope between the canal and the railway, on each side of the breach, is covered with undergrowth and young trees, but at the site of the breach there is a dry stone counterfort wall constructed in 1938, with four other counterforts close together, close to the breach on the Ruabon side, built in 1922.

The railway was constructed as a single-line in 1859. At the site the embankment appeared to be of brown loamy earth, tipped against the natural hillside. Its height is 40 ft. above the level of the meadow and width at rail-level 39 ft., with the two tracks out of centre to the outside. There are no drains in it, nor a surface drain at the inside cess.

The train passed Trevor signal box at 4.47 a.m. but as longer than usual elapsed without "train out of section" being received, the signalman telephoned to Llangollen Goods Junction box to inquire. The signalman there learned from the shunter at the station that the train had not arrived and the latter went in a Post Office along the road and returned at 5.35 a.m. with the news of the accident. Just before this the guard had reached Trevor signal box. The first intimation that there was anything wrong was received by the night supervisor of the Monsanto works, who experienced difficulty with the pumps and eventually found that there was a general fall of level in the canal. He therefore reduced the factory loads. His information led him to place the time of the breach as 3.30 a.m. and the L.M.S. engineers considered this reasonable. The canal labourer responsible for the length was called by the landlord of the Sun Trevor Inn, 250 yd. from the site, who had already notified the police and together they placed stop planks in the canal at Llandyn Bridge, 950 yd. above the breach, where level was found to be 10 in. below normal. The labourer sent his son by bicycle to get the Llantsilio sluices, 3½ miles above the breach closed and this was done at 6.10 a.m. He stated that during his 15 years' experience of the length he had never observed any leakage at the site, though maintenance was troublesome elsewhere. He saw no sign of leakage or movement of the bank as he passed along the towpath 12 hr. before the accident, neither did the G.W.R. ganger observe anything unusual, when he passed not long afterwards. Except for a troublesome rail joint about 200 yd. on the Ruabon side of the breach the track never required more than normal maintenance. Nothing unusual was noticed by the crew of the last train to pass the site, the 7.25 p.m. Ruabon to Barmouth on September 6. Its driver had worked over the line for 25 years and said the running was invariably good.

The breach, when first examined, was about 9 ft. wide at the level of the canal; the edge of the clay puddle was about 1 ft. below normal water level and the puddle under the bed of the canal was intact. There was still a little water flowing. When Colonel Wilson arrived, 28 hr. after the accident, the breach had been widened to about 15 ft. at canal level by further falls of earth, and a large V-shaped scoured channel had been formed. About 2 million gal. of water were discharged. One of the mining experts reported to him that there were 18 in. of blue clay and 15 in. of yellow, both impervious *in situ* and of a plastic nature on which the canal puddle rested and which appeared to be intact. Underlying these were strata of boulders, nodules, clay, and sand of semi-porous nature; the face was very damp. The natural drainage of the uplying lands had been passing in the glacial deposit under the canal down to the River Dee, forming subterranean lakes and channels, the extent and number of which could not be determined. It might be concluded that the crust overlying one of them had suddenly collapsed freeing the water which may have accumulated in the strata between railway and canal. There was no evidence of any collapse of the canal bed. It was also found that the blue and yellow clays extended right under the canal for several yards east and west of the breach. They were highly impervious and formed an almost perfect seal for the water. Reference was also made to other geological features, including impervious layer of reddish clay between the boulder clay and the Silurian rock. The thickness of the former varied and the surface of the latter was located 21 to 25 ft. below rail level when pile driving for the temporary bridge.

Earlier Incidents

The stability of the canal bank at the site came under suspicion in 1938, when a 5 ft. crack, ⅛ in. wide, appeared in the towpath. The dry stone counterfort wall, already mentioned, was then constructed and a length of box puddle introduced in the towpath bank. There was no further movement until the present failure. The other counterforts evidently were built as a precautionary measure, but Colonel Wilson was unable to ascertain whether there had been any sign of failure at the time.

Serious leakage occurs from time to time for a length of about 50 yd. east of Wenffrwd Bridge, 290 to 340 yd. from the breach. Clay is kept in readiness for repairs, but gradually sinks when applied and the leaks reappear. Corrugated-iron lining put in in 1933 did something to reduce them, and in 1937 the ground beneath was found to have subsided. Plans made in 1805 and 1850 show the canal to have been re-aligned 50 yd. west of the breach, perhaps on account of some weakness having appeared in the bank. For about 60 yd. at this point there is a brick waterway wall on the outside of the canal which replaced a stone one about 1900.

The plan of 1805 refers to land "covered by gravel in the meadow below the base by water breaking out"; this was practically on the site of the present breach. In 1933 a cavity appeared in the roadway behind the northern abutment of Wenffrwd Bridge. Two lorry loads were required to fill it. Holes also appear from time to time in the canal bank close to the north-eastern wing wall of the bridge. There also appears to have been considerable settlement at one time of the northern abutment, but there is no record of it. The reconstruction of the bridge was under consideration in 1939 and the then Mining Engineer of the L.M.S.R., Mr. W. J. Davies, reported on the geological formation in similar terms to those used by Messrs. Reid and Clark. He wrote that "from time immemorial water has been flowing from the uplying lands under the canal and in contact with the bottom part of the puddle in it, where it existed, into the River Dee. It is only reasonable to conclude that the continued attrition of this water under the puddle has been responsible for the disappearance of the quantities of clay referred to by the District Engineer." The existence of this natural flow of water is confirmed by the presence of a spring of clear cold water at the foot of the railway

embankment at the site of the breach. There are others on the north side of the main road, and a small but constant flow of water into the meadow from an old culvert which passes under the railway embankment, leading apparently straight into the hillside about 220 yd. west of the breach. Surface drainage from the road is directed into the canal. Several other troublesome points were referred to in the course of Colonel Wilson's inquiry, but it was clear that the length was being efficiently patrolled and that the canal was watertight in the neighbourhood of the breach. Maintenance work was always promptly and well carried out. A partial water supply to the chemical works was restored during the week-end after the accident by constructing temporary dams and laying pipes between them; the natural flow was supplemented by portable pumps. This was sufficient for the time being. The breach was then suitably repaired and the canal bed is being repuddled between the dams. Before flow is restored a pool of water will be left for a period to test the new puddle for leaks and temporary arrangements made to pump water across the gap.

Inspecting Officer's Conclusion

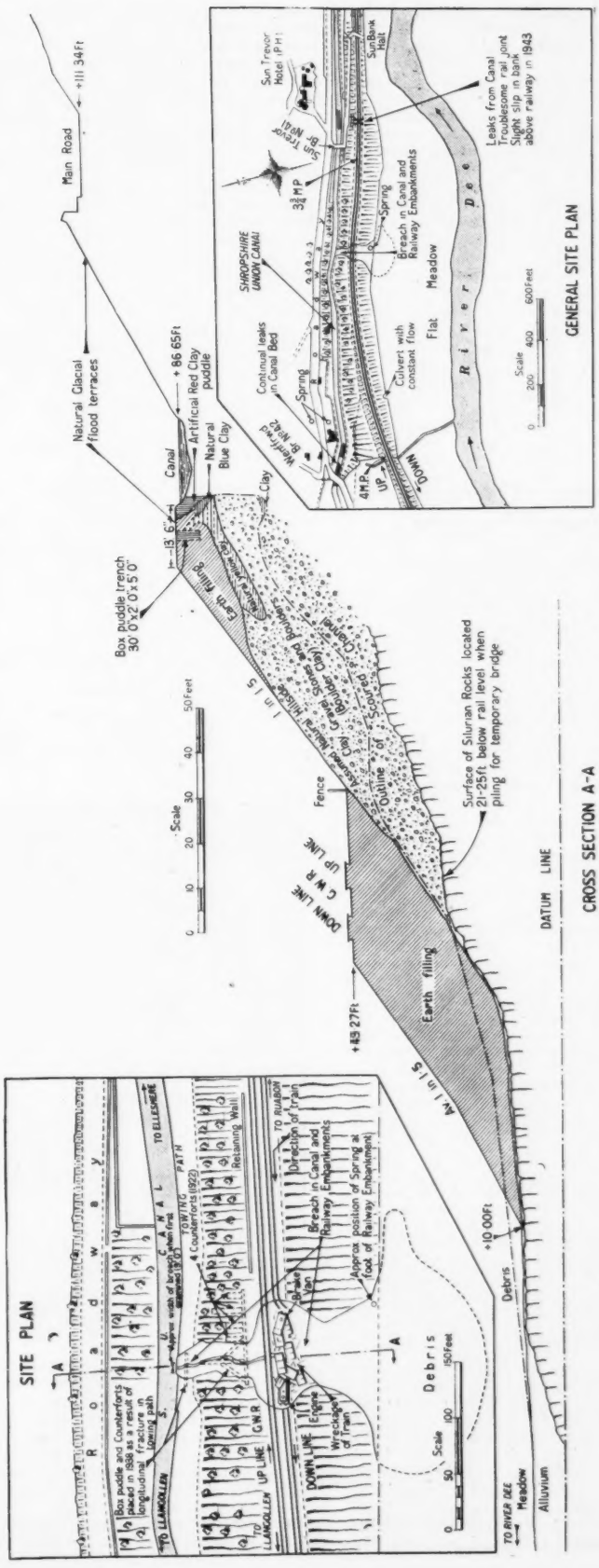
Maintenance of the canal has clearly received close attention and the staff have discharged their duties conscientiously. Daylight patrolling of the railway also has been properly carried out and no experience in recent times has suggested that anything more was required. Although the action taken in 1938, when the crack in the towpath appeared, in the event, has proved insufficient, it is easy to be wise after a major failure has directed attention to past incidents, perhaps related thereto. Prompt action was taken when the crack was reported and there appears to have been little justification for an alarmist view at the time. No blame rests on the L.M.S.R. engineers for not taking more drastic steps than they did. It was particularly unfortunate that the block and telephone wires remained intact, so that no warning was received of the break in the line.

Colonel Wilson considers it difficult to form any definite opinion from examination of the breach itself, but experience points unmistakably to the conclusion that the boulder clay on the hillside is an unsatisfactory foundation on which to carry the load of engineering works of any kind, though it is impossible to speak with certainty when natural forces are at work. The failure of the canal bank and other incidents may have been due to voids in this formation, eroded by subterranean water channels, as suggested in the mining engineers' reports. The load of the canal works, superimposed on the natural terrace, would no doubt aggravate any tendency of the boulder clay to collapse under the influence of water erosion, the effect of which may have been cumulative, although the bank had stood firm for a century or more.

The exceptionally heavy rain on August 5 may have contributed and also the imperceptible but cumulative effect of transmitted vibration of heavy motor traffic on the road, only developed in recent years. Alternatively, sliding may have occurred at the damp surface between the yellow and boulder clays, but the erosion of the latter by natural water channels is considered the more likely explanation.

Remarks and Recommendations

Although the construction of the railway below the canal pre-supposed risk of a breach should the canal bank give way, the canal is not mentioned in the Act which authorised the railway nor did Colonel F. H. Rich refer to it in the report of his inspection



Plan showing circumstances accompanying damage to track near Llangollen, G.W.R., September 7, 1945

made on May 27, 1862. There has been no reason hitherto to suppose the risk to be other than negligible, but the present experience, which has drawn attention to the unreliable character of the ground, suggests that this may no longer be the case, having regard also to the vibration of modern traffic on the road. The measures now taken should prevent recurrence of the failure, but the canal water, in the circumstances, may still present a potential threat to the safety of the railway for 150 to 200 yd. each side.

Colonel Wilson is therefore of the opinion that it is for consideration whether it is desirable to retain the canal as such over the length concerned, now that obligation to maintain it for navigation has ceased. In the event of closure arrangements would have to be made to maintain the flow of water for the main canal feed, industrial supplies, etc., and the available fall of ¼ in. in 400 yd. is so slight that without provision for an artificial head a very large cross sectional area of pipe would be required to carry the necessary flow. Although the load on the boulder clay would be materially reduced if such pipe or pipes were set well back on the canal bed and the overburden of the tow path removed, risk of subsidence would remain in some degree and in the event of pipe fracture a considerable volume of water might be discharged as before.

If, however, arrangements could be made to provide a foot or two of artificial head, a number of pipes of manageable size should suffice; nor should it be difficult to arrange for automatic stoppage of pumps and the discharge of surplus water by a spillway, should the velocity of the water on the delivery side increase as a result of a major pipe fracture, or its pressure fall. If the pipes were to be extended through the Wenffrwd Bridge, continual leakage trouble there would be eliminated once and for all. Colonel Wilson accordingly recommends the consideration of some such measure and the reviewing of conditions at other points in the valley where the railway lies below the canal. He mentions as an alternative the provision of alarm apparatus to give warning in the event of a collapse of the canal bank, supplemented perhaps by examination of the line before the first train in the day, as has been done since the accident, but he considers it altogether preferable to remove, or at any rate minimise, the risk by piping the water over the length of canal concerned. As a precaution against possible movement of the railway embankment on the wet plane above the Silurian rock, Mr. A. Reid suggested that the water percolating through the boulder clay might be tapped at some point close above the railway and led underneath it. Such drainage works, if successful, might serve in some measure to stabilise the boulder clay formation itself. No doubt their practicability will be considered.

The report acknowledges the valuable help rendered to Colonel Wilson by Mr. C. T. Gardner and the officers of the G.W.R. and L.M.S.R., throughout the investigation.

Institute of Transport Annual Meeting

At the annual general meeting of the Institute of Transport on December 18, 1945, Sir Frederick Handley Page, C.B.E., President, in the course of moving the adoption of the annual report and accounts for 1944-45, said that the question of the constitution of the Council had received careful consideration during the year. At present, the Ordinary Members of the Council must be classified according to the branches of transport with which they are associated, and the representation of each branch of transport must be in proportion to the number of corporate members engaged in such branch.

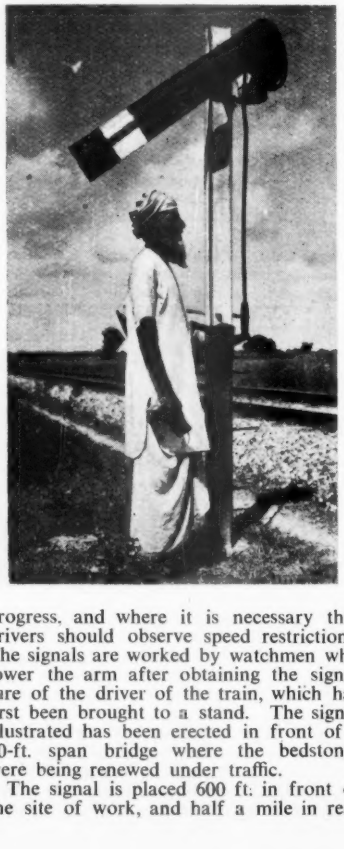
The result had been that the representation of certain branches has been very small and good men had been precluded from nomination. Members engaged in air transport, docks and harbours, shipping, and inland water transport, and those not engaged directly in any branch of transport, such as industrial transport managers, technical journalists and teachers, had been much restricted in opportunities of serving on the Council, only because of a numerical factor. The Council would propose that the thirty Ordinary Members of Council should comprise twenty-one Members and nine Associate Members instead of twenty-seven and three, as at present, and that the Council should be elected so that each principal branch of transport should have at least three representatives. Only twelve places on the Council would be tied, and the other eighteen could be filled without reference to the members' exact transport associations.

It would be noted that the Council had approved the policy of securing a permanent home for the Institute, and he wished to pay tribute to the work which Mr. Kelso and Sir William Wood had done in bringing out the importance of the matter and placing it, in all its various aspects, before the Council. An Institute of Transport, as the educational and research centre of one of the country's greatest industries, was worthy of its own home.

In conclusion, Sir Frederick Handley Page made acknowledgment of the work of the Chairmen of the Standing Committees: Mr. R. Kelso (Executive Committee), Mr. G. S. Szlumper (Examinations Committee), Mr. E. S. Shrapnell-Smith (Henry Spurrier Memorial Committee), and Mr. R. P. Biddle (Awards Committee). On those committees the burden of the work of the year had fallen. He also expressed their appreciation of the work of the Honorary Librarian, the Honorary Treasurer, and the Honorary Solicitors, who had carried out their special duties with care and efficiency.

Engineering Restriction Stop Signal

In India, engineering-restriction semaphore stop signals, similar to that shown, are erected in front of sites where track-renewals, bridge works, and so on, are in



progress, and where it is necessary that drivers should observe speed restrictions. The signals are worked by watchmen who lower the arm after obtaining the signature of the driver of the train, which has first been brought to a stand. The signal illustrated has been erected in front of a 10-ft. span bridge where the bedstones were being renewed under traffic.

The signal is placed 600 ft. in front of the site of work, and half a mile in rear of a caution indicator, which is a narrow horizontal board painted green with a white vertical band across the middle, and shaped with a fish-tail at the left and an arrow at the right. The caution indicator carries two lights at night; green on the left and white on the right, each lamp shows white to the rear.

Staff & Labour

Trade Union Membership

Figures compiled by the Ministry of Labour & National Service show that the total membership of trade unions at the end of 1944 was about 8,024,000 a decrease of 79,000 or 1·0 per cent. as compared with the end of the previous year. The number of trade unions was 946 at the end of 1944 and 970 at the end of 1943.

The information shows that at the end of 1944 there were six unions catering for the railway service with a total membership of 566,030, which represented an increase of about 2,000 as compared with 1943. The membership for the two years was:—

	Men	Women	Total
1943	498,000	66,000	564,000
1944	490,000	76,000	566,000

Catering Wages

The Minister of Labour & National Service has made an order establishing a wages board in respect of workers employed in unlicensed residential establishments and unlicensed workers' hostels. The scope of the board will include hotels, boarding houses, guest houses, clubs, hostels and other similar establishments including holiday camps which either contain four or more rooms ordinarily available as sleeping accommodation for guests or lodgers or, if they contain less than four such rooms, which contain sleeping accommodation for not less than eight guests or lodgers.

This wages board is the last of the five boards recommended by the Catering Wages Commission. The position concerning the other boards is as follows:—

(1) *Industrial & Staff Canteen Wages Board*

This board has submitted comprehensive wages proposals to the Minister, and an Order has been made giving effect to these proposals as from December 15, 1945.

The canteen workers employed in railway staff canteens, of which there are considerable numbers, are covered by this wages board.

(2) *Cafe Wages Board*

This board was constituted in July, 1945.

(3) *Public House Wages Board*

This board was constituted on December 5, 1945.

(4) *Licensed Hotel & Licensed Restaurant Wages Board*

This board is likely to be constituted shortly. The staff employed in railway-owned hotels and refreshment rooms will be embraced within this board.

The Ministry of Labour & National Service has announced the constitution of the Wages Board for Licensed Residential Establishments & Licensed Restaurants which recently was established by the Minister. The board consists of 16 representatives of employers and 16 representatives of workers, with three independent members: Sir Ernest Fass (Chairman), Mr. W. Astbury (Deputy-Chairman), and Miss E. Hesling. The employers' and workers' representatives are as follows :—

Employers

Mr. Stanley Victor Baines
Mr. Albert Edward Bush
Mr. John C. Clancy
Mr. Ernest Walter Dowdy
Mr. Vernon Elwes
Mr. Percy Faulkner
Mr. Harold Alfred Hasleham
Mr. William A. Hofflin
Mr. Francis George Hole
Mrs. Catherine Lodge
Mr. Frank J. McInnes
Mr. Frank Douglas Nicholson
Mr. James Carruthers Nicholson
Mr. Ernest Vivian Rogers
Mr. John Walker, D.L., J.P.
Mr. Leslie David Williams.

Workers

Mr. Robert M. Brierley
Mr. Tom Cochrane
Mr. James B. Figgins
Miss Beatrice A. Godwin
Mr. George B. Greensmith
Miss Florence M. Hancock
Mr. George M. Hann
Mr. Arthur W. J. Lewis
Mr. David H. J. Mason
Mr. Horace Moreton
Mr. Reginald V. Piper
Mr. Joseph Rink
Mr. Thomas Sharrock
Mr. Octave J. J. Veillard
Mr. James Edmund Walker
Mr. Daniel Wilson.

Mr. F. G. Hole, who is included in the employers' representatives on the board, is Hotels Superintendent, L.M.S.R.

Questions in Parliament

Late Running of Trains

Mr. A. M. Skeffington (Lewisham West—Lab.) on December 19 asked the Minister of War Transport whether he would investigate the late running of trains of the Southern Railway system with special reference to those serving south-east London.

Mr. Alfred Barnes (Minister of War Transport) wrote in reply: If Mr. Skeffington will let me know which service he has in mind I shall be glad to look into the matter.

Transit of Building Supplies

Mr. A. C. Bossom (Maidstone—C.) on December 20 asked the Minister of War Transport if he would give an estimate of the added cost arising from breakage in transit; and the difficulty, cost and delay consequent on supplies being delivered to the railway station instead of on to the building site.

Mr. Alfred Barnes in a written answer stated: It is not practicable to make any such general estimate as Mr. Bossom appears to have in mind.

Suburban Rail Services

Mr. A. M. F. Palmer (Wimbledon—Lab.) on December 17 asked the Minister of War Transport if he was now in a position to state the average period of time between the advertised and the actual arrival of trains on the London and suburban service of the Southern Railway between the hours of 7 and 10 a.m. and 4 and 7 p.m.

Mr. Alfred Barnes (Minister of War Transport) stated in a written answer: The information for which Mr. Palmer asks could not be obtained without the expenditure of a great deal of clerical labour which I should not feel justified in asking the railway company, with its present depleted staffs, to undertake. If, however, Mr. Palmer has any particular station or service in mind and will let me have particulars, I will be glad to consider whether the information can be provided.

Marylebone-Manchester Rail Service

Mr. C. Osborne (Louth—C.) on December 17 asked the Minister of War Transport if he would consider increasing the number of passenger trains on the L.N.E.R. Marylebone-Manchester line, since they were still less than 50 per cent. of those run before 1939.

Mr. Alfred Barnes in a written answer stated: There are two trains daily from Marylebone to Manchester and three in the reverse direction, compared with three and four, respectively, before the war. It is not possible at present to augment the service because of the heavy volume of freight traffic the line is carrying.

Goods Transport Precautions

Lt.-Colonel G. B. Clifton-Brown (Bury St. Edmunds—C.) on December 20 asked the Minister of War Transport what steps he was taking to prevent loss and damage of goods in this country during rail transport.

Mr. Alfred Barnes stated in a written answer: As regards damage, the necessity of careful handling is repeatedly impressed on the staff and serious notice is taken where there is evidence of lack of due care. The reduction of losses, due either to theft or to other causes, is in the main dependent on strengthening of the police forces, on the return of experienced staff and increased supplies of packing and sheeting materials. I can assure Colonel Clifton-Brown that these matters are the constant concern of the railway managements.

Amenities of Chatham Station

Mr. A. G. Bottomley (Chatham—Lab.) on December 20 asked the Minister of War Transport if he was aware of the dissatisfaction of the travelling public with the amenities of Chatham, Southern Railway Station.

Mr. Alfred Barnes stated in a written answer: A scheme has been prepared for the improvement of Chatham Station but cannot be carried out until the necessary labour and materials become available. In view of the heavy increase in naval leave traffic the barrier arrangements will be altered in the near future to facilitate the access and egress of passengers.

Travelling Snack Bars, Southern Railway

Three refreshment cars, which have been re-modelled each with a snack bar and tables at which passengers may obtain refreshments, commenced to operate each weekday on the following Southern Railway London-Hastings trains *via* Tunbridge Wells on January 7 :—

Down	Up
12.14 p.m. S.O. from Cannon Street	8.10 a.m. S.X. Hastings to Cannon Street
12.25 p.m. S.X. from Charing Cross	
5.6 p.m. S.X. from Cannon Street	8.25 a.m. S.O. and 2.10 p.m. Hastings to Charing Cross
5.25 p.m. S.O. from Charing Cross	

The cars are available to anyone on the trains, and are not designed to discriminate between the various classes of tickets held. Popular prices are charged.

A number of refreshment cars started also to run on January 7 on other Southern Railway services; details were given in our last week's issue.

Unveiling of Plaque at Southampton Docks

At 12 noon on January 3 a bronze plaque, placed on No. 8 Gate at the Southern Railway Docks, Southampton, was unveiled by Colonel Sherman L. Kiser, Port Commander, 14th Major Port, U.S. Army. The plaque, which represents a tribute to the Southern Railway, and commemorates the vast armies and supplies of the United Nations which were moved through the docks during the war, was received on behalf of the Southern Railway by Mr. R. P. Biddle, the company's Docks & Marine Manager (see also editorial note). Among others present were :—

Mr. H. A. Short (Deputy Traffic Manager, Southern Railway, who was Docks & Marine Manager during the war when Mr. Biddle was with the Ministry of War Transport); Mr. M. G. J. McHaffie (Docks Engineer, Southern Railway); Mr. S. W. Smart (Superintendent of Operation, Southern Railway); Mr. C. Grasemann (Public Relations & Advertising Officer, Southern Railway); Mr. F. C. Bishop (Southern Divisional Superintendent, Southern Railway); Mr. B. Picknett (Director of Sea Transport, Ministry of War Transport); Mr. C. E. Cottrell (Shipping Representative, Ministry of War Transport); Mr. T. Lewis, M.P. for Southampton (Chairman, Southampton Harbour Board); Mr. W. H. Beck (American Consul-General, Southampton); Mr. H. H. C. Mitchener (President, Southampton Chamber of Commerce); Brigadier W. C. A. Hanney (Area Sub-Commander, Hants District); Lt.-Colonel E. C. Soberff, Major D. A. Robertson, and Major R. B. Hitchman, United States Army; Colonel W. H. V. Jones (Embarkation Commandant); Admiral Sir Thomas Tower (Flag Officer in Charge, Southampton).

A reproduction of the bronze plaque unveiled at the Southern Railway Docks, Southampton, on January 3 (see accompanying article)

Notes and News

Electrical & Mechanical Engineer Required.—An experienced electrical and mechanical engineer is required by an international organisation for consultative and routine work. For full particulars see Official Notices on page 51.

Mechanical Engineering Assistants Required.—Senior and junior mechanical engineering assistants are required by the Crown Agents for the Colonies for their engineering designs department. For full particulars see Official Notices on page 51.

Cost-of-Living Index.—The official cost-of-living index figure at December 1 last was 103 points above the level of July, 1914, showing no change as compared with a month earlier. At December 1, 1938, it was 56 points, and at December 1, 1939, 73 points, above July, 1914.

Transport Officials Required for the Control Commission for Germany.—The Transport Division of the Control Commission for Germany has vacancies for civil engineers, mechanical engineers and electrical engineers. For full particulars see Official Notices on page 51.

Ammunition Train Explosion at Savernake.—On January 2, at 3 p.m., an accident occurred at Savernake ammunition railhead. A number of wagons containing explosives standing in a siding were blown up, causing the death of seven soldiers and injuries to a number of others. Railway traffic between Marlborough and Savernake, G.W.R., was suspended for a time.

Argentine North Eastern Railway Co. Ltd.—The Argentine North Eastern Railway Co. Ltd. announces that in accordance with the provisions of the scheme of arrangement approved at a meeting held on December 30, 1943, of the holders of 5 per cent. "B" debentures and "B" debenture stock of the company, the trustees have extended the interest moratorium until December 31, 1946.

Interoceanic Railway of Mexico (Acapulco to Vera Cruz), Mexican Eastern Railway, Mexican Southern Railway.—Notice is given by the liquidators that in accordance with the scheme of arrangement approved by the Court on June 18, 1945, the scheme has become operative, and holders of the undermentioned securities should deliver their certificates and other documents of title to 112, Cannon Street, E.C.4, for cancellation and payment of moneys payable in respect of the scheme. Lodgment schedules can be obtained from the liquidators.

W. B. Dick & Co. (Holdings) Ltd.—The Chairman states that holders of over 90 per cent. of the ordinary shares have so far accepted the offer made by C. C. Wakefield & Co. Ltd. The net profit, after meeting tax, of the operating company, W. B. Dick & Co. Ltd., for 1944 is £36,046, against £50,066. No transfer to contingencies reserves is made, against £20,000. The net profit of the holding company for the year ended March 31 is £35,865, against £29,774. No final dividend is to be paid, making 4 per cent. for the year, against 10 per cent. The carry-forward is £49,736, against £33,693.

L.M.S.R. Accident at Lichfield.—The inquest on the 19 victims of the accident which occurred at Trent Valley Station on January 1 was opened at Lichfield on January 4. Mr. H. K. Beale, on behalf of the L.M.S.R., expressed the profound regret of the directors and officers of the company with the relatives of those who had lost their lives and those who had been injured. After formal evidence had been taken, the inquest was adjourned. The Ministry of War Transport inquiry was opened at Lichfield on Wednesday last, January 9.

Leading Draughtsman Required.—Charles Roberts & Co. Ltd., of Horbury Junction, near Wakefield, require the services of a leading draughtsman. See Official Notices on page 51.

Beyer, Peacock & Co. Ltd.—Beyer, Peacock & Co. Ltd., announces the payment of arrears of dividend on the 5½ per cent. cumulative preference shares for 18 months to December 31, 1942.

Sales Representative Required.—A sales representative, under 36 years of age, is required by a Leeds manufacturer. Candidates must have the necessary technical qualifications to satisfy railway engineers and others at home and abroad. See Official Notices on page 51.

Locomotive Manufacturing Plant for Finland.—The Finnish press reported recently that a modern locomotive manufacturing plant for the Finnish State Railways is under construction at Hyvinge, and is due for completion in the early part of 1946. About 1,300 workmen will be employed.

Jonas Woodhead & Sons Ltd.—The net profit of Jonas Woodhead & Sons Ltd. for the year ended August 31, 1945, amounted to £71,214, compared with £97,738 for the previous year. Dividend on the ordinary stock is 10 per cent., the same as last year, and £19,219 is carried forward, against £18,005 brought in.

Reporting of Railway Accidents.—The Minister of War Transport has made the following Orders revising the requirements in respect of the reporting of railway accidents: (a) Railway (Notice of Accidents) Modification (Revocation) Order, 1945; (b) Railways (Notice of Accidents) Order, 1945. Copies of these Orders may be obtained from H.M. Stationery Office, price 1d. each.

United Railways of Havana.—At the general meeting of United Railways of the Havana & Regla Warehouses Limited, held on December 19, 1945, the Chairman, Mr. A. G. Hunt, mentioned in connection with the several inquiries the board had received as to what interest would be payable on the proposed first income debenture stock in respect of the year ended June 30, 1945, if and when the scheme of arrangement was authorised by the Court, that the board could not take any resolution on the matter until the scheme was authorised, but if the scheme were passed in its present form it was calculated that it would be possible to pay, out of the surplus revenue for the year ended June 30, 1945, interest at the rate of 2½ per cent. on the first debenture stock.

Metropolitan Railway Accident at Northwood.—The Ministry of War Transport inquiry into the collision which occurred on the Metropolitan Line at Northwood on December 31 was opened on January 4 at the L.P.T.B. offices, Broadway, S.W.1. Lt.-Colonel G. R. S. Wilson, Chief Inspecting Officer to the Ministry of War Transport, stated that it was the first accident to a train on the L.P.T.B. system for eight years in which there had been any fatalities or serious injuries. Mr. A. H. Grainger, Chief Solicitor to the London Passenger Transport Board, expressed the Board's regret and sympathy with the relatives.

L.N.E.R. Collision at Ferryhill, Co. Durham.—On January 4, the 11.15 p.m. (January 3) Kings Cross to Newcastle sleeping car train ran into the wreckage of a goods train near Ferryhill Station as a consequence of which 10 passengers were killed and a number injured. The following statement was issued by the L.N.E.R.:

British and Irish Railway Stocks and Shares

Stocks	Highest 1945	Lowest 1945	Prices Jan. 8, 1946	Prices Rise/Fall
G.W.R.				
Cons. Ord.	60¾	47½	55	— 1
5% Con. Pref. ...	124½	104½	111½	+ 1
5% Red. Pref. (1950)	107⅞	101½	103	—
5% Rt. Charge ...	137½	120	122½	—
5% Cons. Guar. ...	135½	117	118½	—
4% Deb.	118	106	106½	+ 1½
4½% Deb.	119½	108	107	—
4½% Deb.	124⅜	111½	115	—
5% Deb.	138	124	125	—
2½% Deb.	83	74½	81½	—
L.M.S.R.				
Ord.	33	23¼	27½	— ½
4% Pref. (1923) ...	65	50	56	—
4% Pref.	80¾	69½	77	—
5% Red. Pref. (1955)	106½	99½	101	—
4% Guar.	106½	97	100	—
4% Deb.	110½	102	104	+ 1
5% Red. Deb. (1952)	110½	103½	105½	—
L.N.E.R.				
5% Pref. Ord. ...	8½	5⅛	6¼	—
Def. Ord.	4¼	2⅛	3⅛	—
4% First Pref. ...	62½	49½	55	—
4% Second Pref. ...	33½	24½	28¾	—
5% Red. Pref. (1955)	103	96	97	—
4% First Guar. ...	104½	95	98	—
4% Second Guar. ...	97	89½	92	—
3% Deb.	91¾	82½	87½	—
4% Deb.	109½	101	103½	+ 1
5% Red. Deb. (1947)	103½	100	101	—
4½% Sinking Fund Red. Deb.	106⅜	103	103½	—
SOUTHERN				
Pref. Ord.	79½	63	72	—
Def. Ord.	27	20⅜	23	—
5% Pref.	124½	104	111	+ 1
5% Red. Pref. (1964)	117	107	107	+ ½
5% Guar. Pref. ...	135¾	117	119	—
5% Red. Guar. Pref. (1957)	117	106½	107½	— 1
4% Deb.	117	104½	106½	+ 1
5% Deb.	137	124	125½	+ 2
4% Red. Deb. (1962-67)	112	104½	104½	— 1
4% Red. Deb. (1970-80)	113½	104	105½	—
FORTH BRIDGE				
4% Deb.	106	103	104	—
4% Guar.	106	101	103	—
L.P.T.B.				
4½ "A"	125	117	120½	—
5% "A"	135	127	130½	—
3% Guar. (1967-72)	100	97½	98½	—
5% "B"	125½	115	118	—
"C"	70	58	60	—
MERSEY				
Ord.	37	31½	32	—
3% Perp. Pref. ...	72½	68½	69	—
4% Perp. Deb. ...	104½	104	104	—
3% Perp. Deb. ...	84	78½	81	—
IRELAND* BELFAST & C.D.				
Ord.	8⅛	6	7½	—
G. NORTHERN				
Ord.	34	24½	31½	—
Pref.	52½	42¾	52	—
Guar.	80	68	79½	+ 1
Deb.	97½	87½	97½	—
IRISH TRANSPORT				
Common	—	—	87½	+ ¾
3% Deb.	—	—	102	—

* Latest available quotation

OFFICIAL NOTICES

ENGINEERING ASSISTANTS—MECHANICAL (SENIOR AND JUNIOR) required by the Crown Agents for the Colonies for their Engineering Designs Department. The appointments carry a scale of salary of £200 × 18 × £400 per annum (Junior), with a higher scale of £400 × 18 × £525 per annum (Senior). Commencing salary fixed according to qualifications, experience and age. Civil Service War Bonus, at present £60 per annum, payable. The posts are not pensionable, but there is an Office Gratuities Scheme.

QUALIFICATIONS:—

SENIOR.—Candidates should have passed the Associate Membership examination of the Institution of Mechanical Engineers or hold equivalent exempting degree.

JUNIOR.—Candidates should have passed parts A and B of Associate Membership examination of the Institution of Mechanical Engineers or hold equivalent exempting degree.

Candidates for both Junior and Senior posts must have served an apprenticeship or pupilage in

(1) Locomotive department of a British Railway Company or firm of locomotive manufacturers, with subsequent drawing office experience, or

(2) Carriage and Wagon department of a British Railway Company or firm of Carriage and Wagon manufacturers with subsequent drawing office experience.

DUTIES:—

Preparation of Tenders and Specifications, examining and approving drawings, calculations, technical correspondence. A sound knowledge of modern manufacturing methods, including fusion welding, is desirable.

Write, quoting C.2649A, to Ministry of Labour and National Service, Appointments Department, Technical and Scientific Register, Room 572, York House, Kingsway, London, W.C.2, for application form, which must be returned completed by 9 February, 1946.

22.12.A.1.

LEEDS manufacturers require Sales Representative under 36, with good presence, education, and the necessary technical qualifications to satisfy Railway Engineers and others at home and abroad. Copy references and full particulars of education and technical experience to Box No. 31, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

WANTED for an International Organisation, a widely experienced Electrical and Mechanical Engineer for consultative and routine work. All-round knowledge of Locomotives, Wagons, Machinery, I.C. Engines, etc. Ability to speak French an advantage. Apply with details of experience and copies of references to Box 111, c/o *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

MESSRS. CHARLES ROBERTS & CO. LTD., Railway Wagon Builders, Horbury Junction, near Wakefield, have a vacancy in their Drawing Office for a Leading Draughtsman.

Control Commission for Germany

TRANSPORT OFFICIALS REQUIRED.—The Transport Division of the Control Commission for Germany invites applications for the undermentioned posts:—

RAILWAYS.

CIVIL ENGINEERS with experience on "way and works" of main-line railways. Corporate Members of Institution of Civil Engineers, Degree or comparable qualifications. (Ref. No. E.2163A.)

MECHANICAL ENGINEERS. Experience in locomotion (steam, diesel and electric), rolling stock, railway equipment, workshops, power plant and man-management. Corporate Members I.M.E. or I.L.E. Degree or comparable qualifications. (Ref. No. C.2980A.)

ELECTRICAL ENGINEERS. Experience in electrical traction, power plant, railway equipment and signals and telegraphs. Corporate Members Institution of Electrical Engineers. Degree or comparable qualifications. (Ref. No. D.1622A.)

Salaries: According to qualifications and grade of appointment:—£600 to £1,200 per annum, supplemented by normal Control Commission allowances for board and lodging, including appropriate Civil Service War Bonus.

Write, quoting the appropriate reference number, to Ministry of Labour and National Service, Appointments Department, Technical and Scientific Register, Room 572, York House, Kingsway, London, W.C.2, for application form which must be returned completed by February 10, 1946.

"The L.N.E.R. regrets to announce that at about 5.40 a.m. the 11.15 night sleeper from Kings Cross to Newcastle ran into some wagons which had just been derailed near Ferryhill Station, Co. Durham. The engine and ten coaches were derailed and a number of passengers were injured, some fatally."

Agreed Charges.—Applications have been made to the Railway Rates Tribunal for the approval of 56 further agreed charges under the provisions of Section 37 of the Road & Rail Traffic Act, 1933. Notices of objection should be filed by January 15.

L.N.E.R. Buffet-Car Services.—In addition to the 12 restaurant-car services and one buffet-car service which were announced to be restored by the L.N.E.R. as from January 7, two more buffet-car services, namely, on the 9.50 a.m. train from Marylebone to Manchester and on the 3.50 p.m. train Manchester to Marylebone, were inaugurated on the same date.

G.W.R. Industrial Sites.—During 1945 some 400 enquiries were made for new factories and industrial sites in territory served by the G.W.R.; a considerable number were in respect of the Government's development area in South Wales. Of the total, 130 have been successfully concluded, covering a wide range of products. A register is kept at Paddington for the convenience of firms showing the sites available. These range from small sites for one-man businesses to one of 1,500 acres.

Fluorescent Lighting in L.M.S.R. Locomotive Sheds.—Fluorescent lighting is being installed at L.M.S.R. locomotive sheds, to facilitate and expedite the inspection and repair of locomotives. Armour plate glass, which will stand rough treatment, is used to cover the cast-iron watertight housing for the lamps in the inspection pits. An "engine side" lamp which can be adjusted to any height by a touch, is provided for the men who repair and inspect engines at floor level; this consists of a tubular steel trolley with rubber tyred castor wheels, carrying two 5-ft. fluorescent daylight tubes; the lower tube is fixed, but the upper one, by means of a counter-balance, can be adjusted to any height between 5 ft. 6 in. and 8 ft. 6 in. A new lamp unit, which is easy to clean and excludes dirt and corrosive fumes, for general lighting in locomotive sheds has also been designed by L.M.S.R. lighting staff.

Permanent Way Institution.—The 62nd annual general meeting of the Permanent Way Institution is to be held at the premises of the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, on Saturday, January 26. The chair will be taken at 2.30 p.m. by the President, Mr. V. A. M. Roberston, Chief Civil Engineer, Southern Railway. After the formal business, an address will be given by Mr. C. E. R. Sherrington on "The Railway Research Service in Peace and War." The annual winter dinner will be held at the Connaught Rooms, W.C.2, at 6.30 p.m. on the same day.

G.W.R. Christmas Period Special Traffic.—A striking example of the pressure on the railways by military traffic after four months of peace is conveyed in a statement from the Great Western Railway that 403 trains extra to scheduled services were run in the recent Christmas period. The figure is 33 per cent. greater than the corresponding figure for 1938, the last peace-time Christmas, when 302 extra trains were run. The 403 extra trains consisted of 53 duty trains for Service personnel, 102 furlough trains, and 248 relief trains for ordinary traffic. On December 21 (the heaviest day) 51 military trains were run. The military trains provided seating for about 35,000 which in normal times would be available for passengers. The G.W.R. also ran 117 special parcels trains, making a total of 520 extra trains over a period of eight days—a daily average of 65 extra trains.

Another Experimental Bus for London.—A new experimental "Pay-as-you-board" bus, the fifth in London, went into service on Route 65 (Ealing and Leatherhead) on Friday, January 4. As we have already recorded, the London Passenger Transport Board is experimenting with various designs of "Pay-as-you-board" buses, to explore the possibilities of improved operation and fare-collection and to determine which design is the most suitable for service in London. The new bus differs from the previous experimental vehicles in that it has a conventional rear entrance instead of the central or front entrances. Passengers enter and leave through air-operated sliding doors controlled by the conductor. Boarding passengers pay their fares to the conductor, who sits at a small counter on the left of the entrance operating a ticket-issuing machine and cash till.

Contracts and Tenders

Below is a list of orders placed recently by the Egyptian State Railways :—

J. Stone & Co. Ltd.: Electrical material for train lighting.

Hadfields Limited: Crossings.

Thomas Firth & John Brown Limited: Dies, reamers, drills, etc.

Arthur Balfour & Co. Ltd.: Dies, reamers, drills, etc.

Rivet, Bolt & Nut Co. Ltd.: Rivets, mild steel.

Imperial Chemical Industries Limited: Plates and copper wire.

Lewis Berger & Co. Ltd.: Paints.

Docker Brothers: Paints.

North British Rubber Co. Ltd.: Rubber hose.

Morgan Crucible Co. Ltd.: Carbon brushes.

Churchill-Redman Limited: Centre lathe.

Telegraph Condenser Co. Ltd.: Telegraph and telephone material.

Armstrong Oiler Co. Ltd.: Buffer springs, tyres, etc.

Robert Hyde & Son Ltd.: Locomotive material.

George Turton Platts & Co. Ltd.: Buffer springs, tyres, etc.

Metropolitan-Cammell Carriage & Wagon Co. Ltd.: Buffer springs, tyres, etc.

D. Anderson & Son Ltd.: Roofing canvas.

North British Locomotive Co. Ltd.: Buffer springs, tyres, etc.

William Spencer & Son Ltd.: Files, hacksaw blades.

William Ridgway & Son Ltd.: Files, hacksaw blades.

Buck & Hickman Limited: Files, hacksaw blades.

Forthcoming Meetings

January 15 (*Tue.*).—The Metropolitan Graduate & Student Society, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W.C.2. 6 p.m. "The Transport Policy of the L.P.T.B.," by Mr. H. A. Curnow.

January 18 (Fri.).—The Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1. 5.30 p.m. "The Development of the La Mont Boiler in Great Britain," by Mr. G. A. Plummer, M.I.Mech.E., and "Operating Experience with La Mont Boilers with Special Reference to Feed Water Problems," by Messrs. G. A. J. Begg, B.Sc.Tech., M.I.Mech.E., W. M. Hebblethwaite, A.M.I.Mech.E., and G. Cooke, A.M.I.Mech.E.

Railway Stock Market

Business in stock markets broadened and cheerfulness prevailed under the lead of increased strength in British Funds, the rise in the latter included National War Bonds and Saving Bonds as well as long-dated stocks, among which 3½ per cent. War Loan became more prominent. The rise in gilt-edged continued to be attributed to the prospect of further cheaper money developments, but was due partly to the possibility of the next Budget bringing a further reduction in income tax. Industrial shares reflected selective buying on export trade developments and on reports indicating that, despite labour and material shortages, good progress with reconversion is being made in many directions. Colliery shares continued a dull exception on compensation complexities. Steel shares were inclined to ease after improvement on the higher steel prices; the Governments decision as to nationalisation of the industry is expected shortly. John Brown and Firth Brown shares were firm on the group's export trade developments. Mining markets were featured by profit-taking in kaffirs, but on the other hand, the base metal mining section responded to expectations of forthcoming increases in lead and zinc prices.

The rise in British Funds has been so pronounced as to have an influence on the yield structure of markets generally. In sympathy home railway debenture stocks have tended to improve, and Great Western and Southern 5 per cent. preference stocks more than maintained their recent rally, although this continued to be attributed mainly to hopeful compensation deductions from the Coal Nationalisation Bill. There was a better tendency in Argentine rails which were aided by the debenture interest arrears payments announced by the Buenos Ayres & Pacific and Argentine Great Western companies.

After tending to ease in sympathy with colliery shares, home railway junior stocks rallied, but were slightly lower on balance, contrasting with moderate gains in prior charge stocks. The latter responded to increased demand; buyers were attracted by the favourable yields and the growing conviction that nationalisation compensation will have to give full regard to the high investment merits of these stocks. Next month's dividend announcements doubtless will tend to emphasise the exceptionally large yields on the junior stocks and the possibilities of favourable capital appreciation should the nationalisation terms be based either on the fixed rental or the standard revenue of the 1921 Act. The railways have always made it clear that in agreeing to the wartime control they in no way giave up their statutory right to standard revenue.

Not more than maintenance of dividends at the 1944 rates generally is expected. Nevertheless, there is continued talk of possible increases with market estimates of 3 per cent. on L.N.E.R. second preference and also on L.M.S.R. ordinary; but these would be the maximum payments possible if it were decided to discontinue allocations to contingency reserves. Reports are current that rapid progress is being made in drafting a Bill for railway nationalisation; but there are doubts whether it will be presented before the annual meetings of the railways in March. Until the Government's plans are known uncertainty must continue to surround home railway stocks, although it is felt in responsible quarters that at current levels they are undervalued on a "fair compensation" basis. It will be in the best interests of stockholders if the nationalisation terms are made known as soon as possible.

In comparison with a week ago, Great Western has receded from 56 to 55; but the 5 per cent. preference further improved from 110½ to 111½, and the guaranteed stock moved up to 119½ and the 4 per cent. debentures were a point better at 107. L.M.S.R. was fractionally lower at 27¼, the 1923 preference eased to 55½ and the senior preference to 76½; on the other hand, the 4 per cent. debentures firmed up to 104 and the guaranteed stock to 100½.

Southern 5 per cent. preference was a point better at 111, the guaranteed stock at 119½ showed a similar rise, as did the 4 per cent. debentures at 106½. In contrast, Southern deferred eased from 23¼ to 22⅞, and the preferred ordinary from 72½ to 71¼. Among L.N.E.R. issues the second preference at 28⅛ was ¼ down on balance, and the first preference 54½, but the 4 per cent. debentures gained a point at 104. London Transport "C" remained at 60, and the "A" stocks were fractionally higher.

Argentine railway ordinary and preference stocks became firmer but were generally ¼ lower on balance with Buenos Ayres Great Southern at 10½. On the other hand, debentures were slight.y higher on balance, Buenos Ayres & Pacific consolidated debentures improving to 57½ and Argentine Great Western 5 per cents to 59 on the arrears payments. Sentiment also reflected hopes that traffics will begin to show benefits from the improved fuel position. Central Argentine 5 per cent. debentures rallied to 61½. Antofagasta Railway stocks were better on the nitrate position, and reflecting strength of dollar stocks, Canadian Pacifics rose afresh to 25⅜.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1943/4	No. of Week	Aggregate traffics to date: Totals 1944/5	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Increase or decrease	Shares or Stock	Prices: Highest 1945	Prices: Lowest 1945	Prices: Jan. 8 1946
				£	£		£	£	£				
South & Central America	Antofagasta	834	30.12.45	41,570	+ 11,390	52	1,572,290	1,498,210	+ 74 080	Ord. Stk.	12	8¼	10½
	Arg. N.E.	753	29.12.45	ps.292,000	+ ps.33,200	26	ps.7,841,500	ps.7,708,600	+ ps.132,900	,,	10	5¾	6
	Bolivar	174	Dec., 1945	5,142	— 803	52	138,245	63,997	— 5,572	6 p.c. Deb.	8½	5½	6½
	Brazil	—	—	—	—	—	—	—	—	Bonds	25	17	28
	B.A. Pacific	2,771	29.12.45	ps.2,552,000	+ ps.362,000	26	ps.55,143,000	ps.52, 7,000	+ ps.2,806,000	Ord. Stk.	7	5	5½
	B.A.G.S.	5,080	29.12.45	ps.3,901,000	+ ps.226,000	26	ps.83,3[illegible]0	ps.77 31,000	+ ps.6,362,000	Ord. Stk.	13⅜	10½	11½
	B.A. Western	1,924	29.12.45	ps.1,212,000	+ ps.101,000	26	ps.30,541,000	ps.29,959,000	+ ps.1,582,000	,,	12¾	9¼	9½
	Cent. Argentine	3,700	29.12.45	ps.3,194,550	+ ps.80,150	26	ps.79,130,950	ps.73,703,650	+ ps.5,427,300	,,	9¾	7	7½
	Do.	—	—	—	—	—	—	—	—	Dfd.	5	2⅞	4
	Cent. Uruguay	970	29.12.45	48,593	+ 12,123	26	973,866	849,263	+ 124,603	Ord. Stk.	7½	4	6½
	Costa Rica	262	Oct., 1945	31,759	+ 8,147	18	128,126	97,913	+ 25,313	Stk.	16½	13	15
	Dorada	70	Nov., 1945	28,954	— 546	47	330,489	294,943	+ 35,546	1 Mt. Deb.	103	102	101½
	Entre Rios	808	29.12.45	ps.420,300	+ ps.70,400	26	ps 10,936,600	ps.10,171,300	+ ps.765,300	Ord. Stk.	7½	4½	6½
	G.W. of Brazil	1,030	29.12.45	35,500	+ 2,600	52	1,364,300	1,187,200	+ 177,100	Ord. Stk.	30/-	23/6	25/-
	Inter. Ctl. Amer.	794	Nov., 1945	$636,212	+ $89,678	47	$8,130,214	$6,827,493	+ $1,302,721	—	—	—	—
	La Guaira	22¾	Dec., 1945	5,355	— 1,167	52	74,152	90,117	— 15,965	5 p.c. Deb.	78	70	69
	Leopoldina	1,918	29.12.45	56,354	+ 4,927	52	2,821,258	2,433,676	+ 387,582	Ord. Stk.	4½	3½	4
	Mexican	483	31.12.45	ps.970,400	— ps.140,100	26	ps16,303,900	ps.12,748,200	+ ps. 3,555,700	Ord. Stk.	¼	¼	1¾
	Midland Uruguay	319	Nov., 1945	19,085	+ 2,235	21	94,098	83,871	+ 10,227	—	—	—	—
	Nitrate	382	Dec.,1945	10,093	+ 1,737	52	191,819	185,304	+ 6,515	Ord. Sh.	75.6	67/6	70/-
	N.W. of Uruguay	113	Nov., 1945	5,621	— 463	20	29,012	30,605	— 1,593	—	—	—	—
	Paraguay Cent.	274	28.12.45	$53,410	— $7,343	26	$1,589,621	$1,578,832	+ $10,789	Pr. Li.Stk.	79⅞	77	78½
	Peru Corp.	1,059	Dec., 1945	145,207	+ 12,034	26	849,478	769,298	+ 80,180	Pref.	10⅜	7¾	8
	Salvador	100	Oct., 1945	c 105,000	+ c 29,000	16	c 376,000	c 323,000	+ c 53,000	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	60½	50½	52
	Taltal	156	Nov., 1945	2,630	+ 590	21	12,320	12,775	— 455	Ord. Sh.	17/-	10/6	15/3
	United of Havana	1,301	29.12.45	50,607	— 7,358	26	1,162,909	1,238,861	— 75,952	Ord. Stk.	3	1	1¾
	Uruguay Northern	73	Nov., 1945	1.660	+ 20	21	68,909	56,029	+ 12,880	—	—	—	—
Canada	Canadian National	23,569	Nov., 1945	6,861,200	— 534,600	48	79,651,400	80,524,600	— 873,200	—	—	—	—
	Canadian Pacific	17,030	31.12.45	1,527,400	— 20,800	52	63,221,800	63,774,200	— 552,400	Ord. Stk.	24	14⅜	25½
Various	Barsi Light†	202	Oct., 1945	21,412	— 3,457	29	166,642	165,000	+ 1,642	Ord. Stk.	131	123	121
	Beira	204	Oct., 1945	70,588	— 7,961	4	70,588	78,549	— 7,961	—	—	—	—
	Egyptian Delta	607	30.11.45	21,422	+ 976	36	417,123	459,114	— 41,991	Prf. Sh.	10	8½	8½
	Manila	—	—	—	—	—	—	—	—	B. Deb.	71	55½	62
	Mid. of W. Australia	277	Nov., 1945	17,065	— 971	20	81,902	101,007	— 19,105	Inc. Deb.	97½	85	85
	Nigeria	1,900	29.9.45	81,372	+ 12,896	26	1,316,308	1,591,450	— 275,142	—	—	—	—
	Rhodesia	2,442	Oct., 1945	516,412	— 1,087	4	516,412	517,499	— 1,087	—	—	—	—
	South African	13,301	24.11.45	1,062,523	+ 14,695	34	34,134,559	30,643,307	+ ,492,252	—	—	—	—
	Victoria	4,774	Aug., 1945	1,250,584	— 42,708	—	—	—	—	—	—	—	—

† Receipts are calculated @ 1s. 6d. to the rupee